ASSOCIATION OF AMERICAN COLLEGES

BULLETIN

VOL. XIV NOVEMBER, 1928 No. 5

How We Teach

An Introduction by Robert L. Kelly

A. Lawrence Lowell
Luther P. Eisenhart
Andrew F. West
Melvin E. Haggerty
Arthur E. Morgan
Norman F. Coleman
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Joseph Herschel Coffin
Edgar E. Robinson
William W. Bishop
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Published by

THE ASSOCIATION OF AMERICAN COLLEGES

Lime & Green Sts., Lancaster, Pa.

Editorial Offices

111 Fifth Avenue, New York, N. Y.

February, March, April, May, November, December

Annual Subscription, $3.00

Entered as second class matter, March 15, 1926, at the post office at Lancaster, Pa., under the Act of March 3, 1879.

Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized May 13, 1922.

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Please send in your reservations at once for the annual meeting of the Association to be held at Chattanooga, January 10–12, 1929—The Read House is the headquarters. R. L. K.

INTRODUCTION

ROBERT L. KELLY

It is too much as yet to expect or demand a science, much less a philosophy, of college teaching. We are in the midst of a period of experimentation in this field which is approaching the characteristics of a Renaissance. An increasing number of college teachers is impelled by the spirit of great adventure. A good many images are being broken. The age of reflection has not yet dawned, but that we are making progress is the belief of an increasing number of students of the American college.

It certainly is true, therefore, that the members of this Association would have no patience with a dogmatist in this field. In the matter of college teaching, we are now all pragmatists. It is possible, however, to discover several kindred or identical hypotheses and several similar methods, as well, in the present day progressive practices which are outlined in the symposium presented in this issue of the BULLETIN. There are, of course, a number of individual practices, and, also, conflicting ones. In essentials, there seems to be a good deal of development in the direction of unity.

It is quite generally agreed that the main purpose of teaching is to open up opportunities for learning. Dewey says that in the process of learning there are three aspects: the gaining of knowledge; the mastering of definite modes of skill, of techniques; and the acquiring of socially desirable attitudes and habits.

It is assumed that the college is organized for the sake of the students. Possibly the members of the faculty learn much more than the students do, but the college is not created primarily for the faculty nor for the exploitation of the subjects which they teach, nor is the college created primarily for the "extension of knowledge"; that is the func-

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It is assumed that the college is organized for the sake of the students. Possibly the members of the faculty learn much more than the students do, but the college is not created primarily for the faculty nor for the exploitation of the subjects which they teach, nor is the college created primarily for the "extension of knowledge"; that is the func-

tion of the graduate school. The purpose of the college is student education, and we are learning to spell the word in the primitive way: e-duco. Perhaps the first and foremost achievement of the present-day Renaissance is the discovery of the individual student as the heart of the college problem.

The members of the faculty have an increasing consciousness of their obligation to teach and to make an effort to teach well. Contrary to the traditional conviction of college faculty members, to know their subjects thoroughly is not enough. There is a growing belief that teaching actually counts.

Some of the colleges profess to believe that the freshmen need "superlatively good teaching." These colleges are assigning their most experienced and resourceful teachers, on part time at least, to the freshmen. Other colleges are concentrating on their exceptional students, sometimes, it would seem, almost to the neglect of the great mass of their students. Some colleges are attempting to do good teaching all along the line.

To this there is a corollary that successful teaching should guarantee continuity of tenure and should constitute a definite basis of promotion. Many college teachers who themselves never published anything which found a place in scientific or professional literature have inspired streams of scholars and research workers. If to publish a book is the only way to academic salvation, at least the rewards of this life, if not of the life to come, are due those who find their greatest joy in saving others, but do not take the pains to save themselves. Of course, the ideal for the college teacher is both to teach and to publish.

The best form of education in the estimation of a number of progressive colleges is self-education—"self-education on some job" under supervision and guidance. The best teacher is the one who does not "teach" if the concept is to be carried over from the lower schools, but the one who kindles the inner fires. If knowledge has about it some of the ele-

ments of power, attitudes and habits comprehend most of the issues of life. The modern college teacher helps to keep the self-starters and the road-signals in good order. If he is eminently successful, he will see to it that the traveller actually arrives.

The watchwords of the present-day college teaching Renaissance are student initiative, self-dependence and expression, participation, cooperation. Recognizing these watchwords, the good teacher says "I must decrease as he increases."

The old-time agencies of the teaching process—the laboratory, the library, the lecture, the recitation, the quiz, the examination—are not being abandoned except by extremists and in rare instances, but the effort is being made to use them with greater discrimination and with more regard for their relation one to another, and their relation to certain more recently accepted agencies.

Among these are the project, the section, the round table, the adviser or counsellor, the tutor, the preceptor, the conference, the colloquium, the comprehensive examination—oral as well as written. These are among the typical agencies, old and new, which are being utilized by the colleges which report in this issue of the BULLETIN, and by others which will report later. Some of them are still used as agencies of formal guidance, but increasingly their use is informal with individuals and groups. There is no effort at standardization. In theory, however, and increasingly in practice, the student and not the teacher is carrying the load in the learning process. To "learn" a student is not only considered ungrammatical, but inconsistent with the newer college pedagogy.

The motives which are most emphasized in this Renaissance vary with the institution and the teacher. Some claim to have secured the sheer absorption of the student in the intellectual experience. Others more modestly recognize the professional, the intellectual, the aesthetic, the ethical interest. Some refer to the "career motive." With all, the

obligation of the teacher is to temper the motive in the light of what is believed to be the student's ascertained capacities.

There are colleges in which members of the faculty are willing to look over the fence. In these, the rigid department is giving way, it may be, to the "division" or the "subject" or the "situation." The effort is, eliminating artificial barriers, to approximate more nearly to life as a whole.

It is a doctrine of several colleges that the establishment of a residential society is a necessary factor in the best teaching. One college would apply this principle in somewhat paternalistic ways to the members of the freshman class. Another would extend it to all of the members of the college, with the result, if not the purpose, of practically eliminating fraternities. At one university in the country the principle operates successfully, it is claimed, in the graduate school. Just now a number of colleges could be counted which consider about 250 students as a proper number for the most effective residential establishment.

The principle of student participation in the process of learning is variously applied, but is a constant, and not an accident, in the new teaching Renaissance. One college leads the students to participate in the creation of subject syllabi and class monographs. With this and other colleges a tentative synthesis is the goal of achievement. Another college would pass beyond the process of assigning problems to students over into the process of allowing, or even requiring, the students themselves to find the problems. At one institution the "situation" is prescribed by the authorities without reference to student preference. All students study the same situation and these are students who have been admitted rather on a volunteer basis and without regard to special aptitudes or capacities. In other colleges the situation grows out of the student experience and sense of need.

The prevailing tendency is towards smaller groups for teaching purposes. Six or seven, or ten or twelve, or even

thirty students, may be assigned to a preceptor or tutor or counsellor. Colleges in general of the best type attempt to have a member of the faculty for each ten or twelve students. On the other hand, evidence is submitted that entirely too much attention has been given to the importance of class size, and evidence is offered that students do as good work in large classes as in small classes. The advocates of the small class point to the intangible and imponderable influences which are not measured and cannot be measured by any of the grading systems now in use, whereas the advocates of the large class reply that if the student should do the work and does do the work, what matters it what the size of the class may be?

Where these experiments are in operation an almost universal result is that the petty restrictions which have been borrowed largely from secondary education are following the way of the rigid departments, that is, they are being omitted, and that an increasing number of college teachers are becoming college-minded rather than department-minded.

The whole movement is an effort to break down artificial barriers and vitalize college experience. An interesting feature of this movement is the recognition by the North Central Association of Colleges and Secondary Schools that the objective standards which it has been announcing and attempting to utilize in recent years are being demonstrated as inadequate and that better ways must be found for evaluating the effective college and effective college teaching. The primary purpose of the annual meeting of the Association of American Colleges at Chattanooga, as well as that of the Council of Church Boards of Education and of the various denominational college associations which meet there during the week of January 6 to 12, 1929, is to discover, if possible, better ways of procedure. This issue of the BULLETIN is offered as a textbook for that meeting.

THE HARVARD TUTORIAL SYSTEM

PRESIDENT A. LAWRENCE LOWELL

WHY WE TEACH

In contributing to a symposium on "How We Teach" in the different American colleges it is well to begin by asking "Why We Teach," in order to remind ourselves of the object to be attained thereby. Teaching, whether by the traditional method of college courses, by discussion groups, or by individual tutoring, is not an end in itself, but a means to promote education. Therefore we may properly first consider what we are after—not by repeating vague definitions of education which every one accepts, and which, to show our originality, we all strive to express in slightly different terms—but by stating concrete points that seem to need attention in American colleges. To us four of these have appeared to be especially significant. They are: to devote more attention to the undergraduate as an individual; to treat him as a whole being; to make him more largely educate himself, and to provoke in him an interest in so doing.

The first of these hardly needs explanation. The former conception, drawn from Germany, that the function of a university is to provide wide opportunities for education, of which the student may or may not take advantage, as he pleases, is passing into the background in America. Everywhere more attention is being given to the individual student.

The meaning of treating the student as a whole is not so clear. Owing to the process by which the elective system grew up, gradually substituting more and more electives for required courses, the course became the unit in education and a fixed number of credits in courses became the qualification for graduation. This was

true whether the election was unlimited or restricted by certain rules of choice; and it was true both of colleges and of lower schools, so that in some form counting by credits became well-nigh universal in American education. It is a bad plan, because it measures by the process that has been gone through instead of by the result. It is bad also in making the course the unit in education when, in fact, there can be only one real unit—that is, the student himself. The true object of education is the student, and that not as a conglomeration of fragments, but as a whole. The important thing is what, as a man, he has become.

The third object mentioned—that of making the student more largely educate himself—is a highly important one. All true education above rudimentary, mechanical training is in the main self-education with assistance, under guidance and stimulation. A tutor can help, but he cannot supply the place of effort on the part of the student. Massage is not equivalent to exercise in developing strength—a truth that applies not only to the learning of a definite subject, but still more to preparation for the battle of life. So far has this been forgotten that to the public, and probably to most members of the teaching profession, the words "education" and "instruction" are synonymous; whereas in fact instruction is a means, and only one means, to education. For that reason there has been a tendency to teach too much and study too little. What we need is personal thought as compared with receptivity.

The fourth object is to provoke in the student a desire to educate himself, and this must be done by arousing his interest in some subject. It often happens that one loses sight of the end by fixing attention on the means. So strongly have American educators felt that a student cannot do good work in a subject in which he is not interested that they have been too much inclined to inquire in what he is interested rather than to interest him in what he had better study. The fact is that most boys and young men have no very strong intellectual interests, and to ask them

to select what they would like to study means in many cases a selection of that which they can study with the least effort. In short, the result of a selection according to natural interests has been in large part a reduction of effort and of the educational value that comes therefrom. To some extent effort will come from an existing interest, but to a much larger extent interest comes from voluntary effort. The normal youth who can be induced to throw his powers vigorously into any intellectual study will find it interesting.

The General Examination

The method we have adopted for reaching these results has been to require for graduation a mastery of some rather large subject as a whole, to be attained so far as possible by the student's own work; with a general final examination thereon to measure his attainment, and still more to set a standard for achievement. This is the essential element in a system that has now been adopted here by every department, and every field of concentration entered by any considerable number of students, except chemistry, and is applied by them to all undergraduates majoring in their subjects. Some colleges have a similar provision for a body, usually small, of honor students; but, so far as I am aware, no other college, save Bowdoin, has yet put into effect a general final examination at graduation for all students in their major field.

Such an examination is the foundation of our plan, on which all the rest is based; but in fact its importance is sometimes overlooked, because the tutoring, the frequent contacts with the students which it involves, and the personal influence of the tutors themselves, attract more attention. Yet it is the examination that marks out the goal for both tutors and students. Without it the system, except for a few undergraduates of exceptional scholarly tastes, would be like a football game without goal posts, or would become little more than tutoring in courses and lose

its real significance. A general examination that was easy or superficial would hamper the tutors in doing their best work; one that was eccentric or unfair would discourage both them and their pupils; one that required only a memory of facts would make it hard for both to devote energy to the deeper relations of the subjects studied. The nature of the examination, therefore, determines the character and effectiveness of the whole system. The object is to enable the candidates to display their command of the subject and cause them to expose their ignorance, and this in the case of those who have much, or only a moderate amount, of either. To prepare such an examination is an exceedingly difficult task, requiring much time and labor, wherefore it is important that in the departments with a large number of students the examiners should be relieved from a part of their other work; and in the Division of History, Government, and Economics which has had the longest experience with the system here, an examiner in each of the three subjects comprised is excused from one half of his teaching.

Both written and oral examinations are used by almost all the examining committees, each being at liberty to apply them in accord with its own experience of their value. In fact the practice has varied, but the present tendency is to limit the oral to candidates for distinction and to students who on the written papers do not clearly earn a degree, it being thought a waste of time to give an oral examination in cases where it will have no effect upon the result. The number of written papers and the length of the orals vary. The division with the longest experience has three written examinations of three hours each, and others which have less are likely to find that an increase of their papers will improve the value of their tests. In the subjects taken by the largest number of students, history, government and economics, ancient and modern languages, and history and literature, there are papers on both general and special fields. In history, government, or economics, for example, every candidate for a degree must take an

examination of a general character in the two subjects in which his principal work does not lie, a second examination covering in more detail the one in which it does lie, and a third, more searching, on his special field therein. In the literary subjects every man, before trying the paper on his own field, must take an examination on the Bible and Shakespeare, and another on two modern authors if his field is classics, or on two ancient ones if his field is modern literature; the moderns being allowed to read the classic authors in translations, the classical students having the same privilege for some modern books in the less familiar languages. Candidates for distinction are usually required also to write theses, on which much labor is often expended. These are, in fact, most important in determining the grade of honors awarded. They may reach a high grade of excellence, and although far less elaborate than theses for the doctorate of philosophy, they are sometimes quite equal in quality.

The committee that prepares the examination must consider many things. It must maintain satisfactory relations with the instructors in courses and with the tutors. While, on the one hand, it must use its own judgment on the ground to be covered and the nature of the questions to be asked, it cannot, on the other hand, disregard entirely the content of the courses. They are part of the instruction offered by the Faculty and should be regarded as within the field included by the examination; for we do not intend to abandon teaching or examination in courses, copying the practice at Oxford and Cambridge of leaving instruction wholly to a tutor, save for such attendance at a series of lectures as he may direct. We believe that contact with a number of eminent teachers in systematic course work has a value not supplied by merely hearing their lectures.

The examining committee must keep in touch also with the work of the tutors, in the sense that the latter must be aware of the scope of the examination and the kind of question that will be set. The committee, therefore, cannot properly

widen the field without warning to them. Students have a right to rely on them for advice about their reading and it would be demoralizing to conduct examinations so that tutors cannot give that advice intelligently. Yet the committee is naturally and properly testing the work, not only of the students, but also of the instructors, and especially of the tutors. For these last it must set a standard and by them it is likely to be thought a little severe. The scope of course instruction is much enlarged by the tutors, and the examiners require a more symmetrical and well-rounded preparation than course instruction alone would give. Moreover, it may be noted that the material with which to prepare for the examination must be accessible to the students. It must be in books. Undergraduates cannot be expected to make their preparation a matter of original research.

The general examination increases not only the work required of the student, but also the danger of losing his degree, and this is no imaginary peril. On the average about eight per cent fail, although they may have passed in all their courses. Those who fail can try again in a later year, and so many of them do so that of the men failing at first about two-fifths succeed in a subsequent examination.

The Tutors

Without personal guidance on his way, the undergraduate would be at a loss to supply the gaps between his courses, to connect them, to fill in the background and survey the whole subject. For that purpose the tutors are provided. As soon as the student, at the end of his freshman year, has selected his subject of concentration he is assigned to a tutor in that field who becomes thenceforth his adviser in all his studies. Looked at from the standpoint of academic organization, the function of the tutor is to help the student to cope with the general examination; not by coaching or cramming, but by making him com-

petent to pass it. Looked at from its effect upon the pupil, the purpose of the tutor is to lead him to educate himself by a thorough study of his chosen subject; and, if the system works as it should, these two points of view are in fact two aspects of the same design from different sides, two ways of stating the same thing. There is always the danger that the tutor may degenerate into a coach, carrying his pupil instead of guiding him, saving him effort instead of stimulating him to effort; and that danger must always be watched, but so far it has not shown itself here. The primary object of a coach is the passing of an examination, with education as a subordinate consideration; that of a tutor is the education of his pupil, knowing that a properly trained mind can pass the test. The distinction is one of aim and emphasis, depending on both tutor and examiner, for an examination that could be passed by cramming would have quite failed in its object.

In describing the work of the tutor it must be borne in mind that the office means a function, not an academic grade. In most of the departments it was necessary at the outset to assign tutorial duties to young men. Whatever their capacity, old dogs are usually disinclined to learn new tricks. But as the young tutors have grown older, they have been promoted at the same rate as those who have been teaching in courses, until the tutors hold positions all the way from that of assistant or instructor, to that of full professor; and such is the declared policy of the University. Some of the older professors have, indeed, preferred to use part of their time as tutors; and this is done by the whole department of mathematics. Tutoring, like the analogous conferences with graduate students, is one form of teaching, not less difficult or honorable than conducting a course. In fact, a large part of the tutors do both; a rough survey of the departments indicates that at least one half of the tutors are also giving courses, and the proportion is tending to increase.

The length and frequency of conferences with the tutor varies in the different departments. Sometimes they last only half or three quarters of an hour, but more commonly an hour is assigned for the purpose. In a few subjects the conferences for the sophomores come less often than once in two weeks, but that is only in the smaller departments; the usual practice is once a week or fortnight for the sophomores and once a week for the juniors and seniors. But there is much diversity, and, in fact, the meetings with the tutors are more frequent than any rules prescribe, especially in the case of candidates for distinction who in their senior year are writing theses and are constantly seeking advice at odd times. Normally the students meet their tutors singly, but in some cases it has been found advantageous for them to meet in pairs or in groups of three to five. The departments are experimenting, and the individual tutors are allowed no small latitude, for much depends upon the personal quality of the students to be tutored.

The conferences with the tutor are by no means for the purpose of giving information; they are not in the nature of private lectures. Their object is to help the student to work out for himself the subjects he is studying, and experience shows that the less the tutor talks, the better. He rather helps the pupil to work out his own difficulties. In short, the process is Socratic, not didactic. Moreover, it has as little as possible to do with the ground covered in the courses the student has taken. Sometimes, where the student has failed to grasp the subject of a course, it may be necessary to explain it to him; but in the main, the courses are used as bases for departure in other directions, or as fixed points to be connected in the field to be covered. In this the tutors seem to be almost universally agreed. The attempt to enlarge, complete, and, from various points of view, illuminate the field involves, of course, much reading quite outside the courses; and it has been found that one of the effective methods is to require the student to write a report upon the book or subject on which he has been at

work, and discuss it with the tutor. These reports have been found very valuable, and their use has been increasing. Not only have they proved a means of helping the student to a command of his subject, but one of the examiners reports that they have distinctly improved the quality of English composition as seen in the general examination.

The relation of the tutor to his pupil is peculiar, different from any other in the College. It is that of a teacher, but not a teacher who sets examinations or gives marks. Nor is he supported by college discipline. Failure to attend the conferences he assigns is not reported to the Dean's office; and although the tutor has a right to prevent a pupil who has been grossly neglecting his work from trying the general examination, it has never been exercised. Failure to attend conferences was formerly not uncommon; but it has steadily diminished, partly, no doubt, because in preparing for the general examination, the need of the tutor has come to be felt, and partly, it may be assumed, from the cordial relation that has grown up between tutor and pupil. The former is there to help the student as his guide and friend, and he is generally so regarded. His object is to develop the willing pupil, and provoke the listless to an interest in his subject. All this he could not do unless he was himself personally interested in his pupils. Naturally that is most obvious in the case of candidates for distinction, and the eagerness of the tutors that these men should succeed, and win as high a grade of honors as possible, is the more valuable because that spirit is caught by the pupils.

The system is tending to produce a broader type of tutor. Since he has to cover more ground with his students than the man who gives courses on his own chosen parts of a subject, he must keep up with a wider field, a fact that has manifest advantages. But after all, the system is still new, for we do not, and cannot wisely, copy the models of Oxford and Cambridge, but must seek to adapt to our conditions such methods as will make with our own a consistent

whole. Every tutor is therefore very free to work in the way he finds most profitable for each student under his charge. Yet to compare experiences, to talk over their common problems, and to improve their methods, it is the custom of the tutors in the various divisions or departments to meet at luncheon every week or two for consultation. This is welding their work into an organic system.

Effects of the System

Four concrete points have been mentioned as the objects to be attained: (1) to devote more attention to the undergraduate as an individual; (2) to treat him as a whole being; (3) to make him more largely educate himself, and (4) to provoke in him an interest in so doing.

That the tutor is a highly effective means to the first of these objects is self-evident.

The attempt to treat the student as a whole would be completely achieved if someone were omniscient enough to take part with him in all his studies; but, unless he is to be narrowed to the single subject of his major interest, this is impossible. For the undergraduate to have, in a broad field in which his principal work is done, a tutor who is also his adviser about the choice of all his electives, is certainly far nearer to treating his intellectual life as a whole than any system of courses can be; and, in fact, it has distinctly that effect.

The third object, that of making the student more largely educate himself should be the aim of the tutor. It is his business, not to supply the student with information, but to tell him where he can find it; not to present to him ideas, but to make him work them out himself by reading and discussion—in short, to help the student to educate himself from books and other material within his reach. The chairman of the board of tutors in one of the largest departments reports that in his opinion "the great gain due to the introduction of the general examinations and the tutorial system is twofold: first, the student has been taught to

view a field of knowledge as a whole, not as a series of more or less unrelated parts; second, the student has learned through his intimate discussions with his tutor to probe more deeply and independently into his chosen field of knowledge, the result being that he is better able to do work by himself."

The attainment of the fourth object is the crucial measure of the value of the system. The tutors are designed to stimulate effort by interesting, and to develop interest through effort. Partly for this reason we have applied the system, not only to men desiring at the outset to be candidates for honors, but to all undergraduates, believing that they will all benefit thereby, and that many of them, who have the capacity without the inclination, will be provoked to achieve a much higher grade of proficiency than they would otherwise attain. That this result has been reached may be seen from an increase in the percentage of men who have graduated with distinction, as shown in the following table:

DEGREES AWARDED WITH DISTINCTION
1922–1928

	Total Degrees with Distinction		Degrees with Distinction in Special Subjects	
Year	No.	%	No.	%
1922	114	20.8	82	15.0
1923	139	23.9	111	19.1
1924	171	29.3	120	20.5
1925	177	27.8	136	21.4
1926	184	28.4	143	22.1
1927	229	32.4	177	25.0
1928	210	29.2	164	22.8

It seems to be the general opinion of the chairmen of the boards of tutors that a very large part, at least, of the increase has been due to the personal influence of the tutors; the chairman of the board in one of the largest departments remarking: "I view the entire increase in the candidacy

for distinction as attributable to the new methods of instruction. . . . I think it safe to say that 85 or 90 per cent of the men capable of attaining distinction are now candidates for distinction. Certainly not more than 15, and probably not more than 10 per cent of the non-distinction candidates for degrees have the ability to do much more than they are now doing." There is no doubt that the students work harder than they did. They have a more definite aim in their work; and it may be remarked also that something of the competitive spirit in their studies has been restored; for in general they regard the divisional examinations, as they call them, as a better test of ability and true scholarship than the examinations in the separate courses, where they feel that high marks can be more easily obtained by mere diligence and memory.

On the part of the undergraduates there has been no complaint of the burden of preparing for the general, or as they call them "divisional," examinations in addition to the work in courses, except in the case of candidates for distinction. These men are required to prepare theses that take much time, and for them a lightening of the course work has been asked. The Faculty, therefore, decided to permit, for such of these candidates as are recommended by the department and the Dean, a reduction of two courses in all, one of which may be in the junior, or both in the senior year. The privilege has been granted sparingly, solely for the purpose of freeing time to be used for personal study and writing under the guidance of the tutor.

The Reading Periods

On the other hand, the new system has brought a new problem. The students having increased more rapidly than the courses, the number of men in each course has, on the average, become larger; and this in turn has increased the labor of the instructor. Moreover, with the improvement in the education of the students, with their stronger interest in educating themselves and hence their greater proficiency

in their subjects, the quality of the courses has become higher, and the demand on the instructor more strenuous. To this must be added the burden from the large growth in the number of graduate students. Meanwhile the tutors also have found that the calls upon their time have been distinctly greater than the number of hours they were supposed to devote to conferences. In particular, the candidates for distinction, who are writing theses, drop in upon them at all sorts of odd times, and break into the continuity of their own work. Now, in order to get the best men, we must see that they are not at a disadvantage as compared with those in other places. They should have fully as great an opportunity to keep up with their subject and to make and publish their own contributions to knowledge. This subject has engaged the attention of the Faculty, and, considered from the point of view both of the instructing staff and of the students, a plan has been devised for two periods in which, save for the elementary courses, there shall be neither lecturing nor tutoring, but reading by students on their own account. The first of the periods comes during the two and a half weeks between the Christmas vacation and the mid-year examinations, the second in the three and a half weeks from the seventh or eighth of May to the final examinations. The object of these reading periods is twofold: first, to relieve the work of the instructing staff, by reducing the teaching period to about its length in a European university; and second, to make the student appreciate more thoroughly the fact that his improvement must come through self-education.

As yet the experience with these reading periods has been limited to the single year just passed, but so far the effect upon the students has been decidedly encouraging. They were present and hard at work. The reading room at the Library was overcrowded as never before, so much so that additional space is to be provided hereafter; and at the same time more books were sold by the Cooperative than in any previous January. At the mid-year examinations

in courses questions were set upon the reading assigned for this period, with an interesting result. The higher scholars appear to have generally done better in these questions than in those upon topics covered by the ordinary course instruction, partly because they were on their mettle to do well, and partly, as they say, because they had uninterrupted time to read. As might be expected, on the other hand, the very poorest scholars, feeling the lack of instruction, did not do so well. Yet even in their case a gain is seen from the experience of trying to work by themselves—of striving to walk alone.

It must not be forgotten that the reading periods do not extend to freshmen, or to elementary courses of any kind, some of which are taken by almost all sophomores and less largely by upper classmen. Nor should we have ventured to try the experiment until after years of preparation by the system of general examinations and tutors. It is certainly a great innovation, but here we are accustomed to innovations. Among the most precious of our traditions is that of perpetual change. Change means experiment, and experiment means doing things which one does not at first know exactly how to do aright. This plan is another long step in the direction in which the College has for a score of years progressed.

TEACHING AT PRINCETON

The College

Dean Luther P. Eisenhart

Before the preceptorial system was instituted at Princeton in 1905 most of the courses for upper classmen were conducted by means of lectures. Tests, examinations and an occasional essay were the means employed to determine to what extent the course had made an impression upon the student, particularly upon his memory. A professor might discuss certain subjects with some of his students out of hours, but in general the student was not being taught to interpret or coordinate the assigned reading in a course. He had reason to believe that this was the professor's job, and he accepted the results as set forth in the lectures. It was to meet this situation that the preceptorial system was instituted, and thus a step was taken in the direction of the teaching of the student as an individual.

The preceptorial system is applied to what may be called the reading departments in distinction from the departments of science. At first it was applied to the courses of the upper two years but later it has been extended to many of the sophomore courses. Such a course involving preceptorial instruction consists primarily of a prescribed body of reading to which the lectures given are complementary. Ordinarily there are two lectures and one preceptorial conference in a course each week. The student is made responsible to a particular preceptor for his reading. At each conference the preceptor meets about six or seven of the men assigned to him. The conference is conducted in an informal manner and is not intended to be a quizz, a recitation or a lecture but a means by which the preceptor may determine how thoroughly and intelligently a student has been doing his reading, and aid him to a

better appreciation of the subject matter of the course. The conference is a method of introducing the stimulant of the interrogation into the student's conception of his work, so that he may realize that an education consists of something more than the assimilation of facts. In certain cases written reports on the reading prepared by the students serve as a basis for the discussion. From the experience which the lecturer has with his preceptorial groups and what he has learned from other preceptors concerning their own men he is in a position to revise his lectures so as to bring out more forcibly the features of the course which he has found need further exposition.

In certain courses students of higher standing are met in preceptorial conference and the others in classes conducted by recitations. This, however, is an exceptional process. In some courses the students are assigned to a conference on the basis of their standing and in others they are not; although a qualitative standard of selection is considered desirable there are at times difficulties due to the schedule of work being taken by the students. In the upperclass courses departmental students, that is students who are concentrating in a particular department, are more and more being grouped together in special conference groups and thus are separated from the students who are taking a course as a free elective.

When the system was instituted strict requirements were placed upon attendance at the preceptorial conference and a student was debarred from the examination and thus failed the course if his attendance was not satisfactory. As the students became familiar with this type of instruction, they realized the value of the preceptorial conference and it has not been necessary for the Faculty to be so insistent upon attendance. Also, at the beginning the rating given by a preceptor was counted more heavily than the student's record in the final examination. Recently more stress has been laid upon the examination, and a department is free to determine to what extent the rating of a

preceptor is to count toward a student's final standing in a course. Greater success is being attained where the conference assumes, in the mind of the preceptor and student alike, the character of a privilege rather than a compulsory exercise. This shows itself in courses where the instructor has introduced optional conferences entirely outside the requirements of the course, whether or not there are preceptorials in connection with it.

At first the preceptorial conferences were conducted almost entirely by men of the rank of assistant professor who devoted all of their time to this type of instruction. As time went on this ceased to be the case and today the conferences are held by men of all grades in a department. Ordinarily the professor who gives the lectures also conducts preceptorial conferences in the same course and several other members of the department conduct others. This group discusses the required reading of the course, sets the examination and determines the rating of each student. Some of the more active minded students prefer a preceptor who is not the lecturer inasmuch as frequently two points of view about the course are thus available for the student.

Five years ago Princeton instituted a new plan of study for the degrees of Bachelor of Arts and Bachelor of Science. The essential features of the new plan of study, to be explained more fully later, are that each student at the beginning of his junior year is required to choose a field of concentration in which the major part of his study will be done during the next two years; the reduction of the number of courses which a junior and a senior is required to take and the addition of a requirement of individual study, aside from courses, of a subject in the field of concentration; comprehensive examinations in the field of concentration, and a quality requirement in the work of his chosen field. Thus a candidate for a bachelor's degree in the liberal arts and sciences is required to follow a program in many respects similar to the plan of honors courses as now

conducted in a number of colleges. It is the outgrowth of such a plan instituted at Princeton over twenty years ago. It is felt that the advantages of such a program should not be limited to a few students, and the requirements are placed at a level consistent with the capacities of those admitted in accordance with the policy of selective admission. Those who meet the requirements with distinction are awarded honors at graduation. About 35 per cent of the seniors qualify for honors.

In accordance with the plan each student takes two courses in his department during his last two years and any two other courses for which he is qualified. In every case a student is enrolled in a department and ordinarily his courses in his field of concentration are in one department. However, a department may allow a student to take certain courses in other departments, which, together with the courses in his own department, constitute a coordinated program.

In addition to the courses taken a student pursues each year a program of reading in a subject of his field. This reading is ordinarily based upon lists of books or topics supplied by his department. In certain departments this reading is done in a field entirely distinct from any of the courses; in others it may be said to be complementary to the courses. It is under the direction of a member of the department designated for the student to whom the student reports periodically. In the case of most departments papers are required presenting the results of the student's reading. In junior year a number of these papers are required, whereas, in senior year there is an extensive paper, or thesis, dealing with some topic of particular interest to the student in his field of concentration. A number of the theses presented thus far have been very fine examples of the kind of scholarly work which an undergraduate can do, and have given good evidence of the value of the plan. In certain cases the University has reduced the schedule of a senior with very high standing to three courses in order

that he might devote himself more satisfactorily to the study of his particular problem.

The plan of independent reading is a natural outgrowth of the preceptorial system. The preceptorial conference gives the student an opportunity to learn how to read in connection with the course. In his independent reading he makes use of the same process but on a large scale and it is for him to coordinate the material without the aid of lectures which to a greater or less extent supply this element. It is intended that this process shall develop initiative and a sense of responsibility in the student. The regulations concerning this work were conceived with these ideas in view. The student confers with his supervisor about his reading, gets from him suggestions concerning broad contacts with his field as well as the significance of detail, and receives direction in the technique involved in the preparation of his papers and his thesis. The success of this feature of the plan depends not only upon the attitude and capacity of the student but also upon the ability and readiness of the supervisor to exercise his function properly.

A student's knowledge of his subject is tested by the regular examinations in his courses of the first term each year, by a general examination at the end of junior year upon the work of the year and by a comprehensive examination at the end of senior year upon the work of both years. These latter examinations are planned so as to determine not only a student's knowledge of detail, but, also, his appreciation of the broader aspects of his subject and the relations of the various parts. The papers written in connection with his independent study during each of the two years, mentioned above, are counted as part of the examination at the end of the year. By these two means we are enabled to determine more adequately the degree of a student's mastery in his chosen field of study.

At Princeton there are five passing grades, entitled groups. A student is required to have an average standing of third group or better in all of his work in his field of

concentration for the two years. Whereas a number of institutions have for some time required a student to attain quality grades in a number of courses, at Princeton the quality requirement is placed upon the student's attainment in his field of concentration.

There is another aspect of the question which deserves comment. Whereas formerly the course was the unit of instruction and there was no consideration of the effect of a combination of the courses in the development of the individual student, now the whole of a student's work in his department is the unit and the question of the education of the individual is paramount. For, if a student is to be trained to meet a comprehensive test, it is important that the elements in the training be coordinated to this end. Since the introduction of the plan there has been constant study by the several departments of their program of courses with the result that a considerable number of courses have been changed or rearranged. Also, the University had been compelled to consider its full plan of instruction in the lower two years because of its bearing on the upper years. In view of the inherent differences in the subject matter of the various departments most of these questions have had to be considered separately by the several departments. However, many of the fundamental questions are common to all departments, so that there has been a general discussion of them. The result is that the problem of education is now being considered by many of the Faculty, whereas formerly most of them were concerned only with the courses which they were giving.

The theory of the plan of study for upper years is that at graduation a student shall have gained at least a moderate mastery in the field of knowledge he has chosen for his main effort; that this mastery shall mean more than a mere assemblage of facts stored by memory from the courses taken; that he shall have gained by his method of study an appreciation of the relations of various parts of the subject, shall have organized his knowledge by the use of his

own judgment, and shall have developed the power of expressing his conclusions in a clear and convincing manner.

The whole plan was conceived with the idea that there were many students whose records in college under the older plan did not give any evidence of their intellectual potentiality. It was thought that when these students were required to concentrate in one field and maintain therein a good standing, they would develop an interest in the subject and ultimately qualify for honors. The results fully justify this belief. In fact, many students now qualify for honors, who would not have elected an honors program as against a pass program, if the choice had had to be made early in their college career. Some of the students groan when they compare the amount of work required in the preparation of their papers and for the comprehensive examinations. Their feelings are not due so much to opposition to the purposes of the plan but grow out of the failure to understand these purposes. Furthermore, these students are under the influence of the popular conception that a degree rather than an education is the ultimate goal of a college career.

An objection raised at times to the plan is that it limits the number of different courses which a student takes and thus runs counter to the idea of a broad, general education. Such an education involves the conception that facts are the important thing, and students feel that a mere knowledge of such facts is not worth much; hence under the former plan we found that such a student plans only to "get by" and devotes his attention to other things. In his study of a field of concentration the student realizes that facts must be considered in their relations and his reading is apt to reach out in an effort to see the significance of the material with which he is dealing. Thus his education broadens and the extensions become integrated into it. He is using the processes which produce an educated man. After all, the ultimate purpose of the Princeton plan is to teach the student how to educate himself.

The Graduate School

Dean* Andrew F. West

It gives me pleasure to tell you the working of the residential life of our Graduate College and of its effects. Our Graduate College rests on certain definite convictions. We seek to create a society of picked young advanced scholars in the liberal arts and sciences, young men of high promise both in point of well-balanced preliminary liberal education and of fitness for graduate work in some department. They form a residential society where men in different subjects mingle freely in daily intercourse and thus inevitably learn a good deal from each other in addition to what they get from their professors. This familiarizes them with the points of view of young scholars in various fields of study. This casual interchange of knowledge and opinion promotes mutual understanding and comradeship in the things of scholarship. It also helps to increase their conversational skill—a thing which underlies all good teaching. The students in the Graduate College are thus not isolated or restricted in their intellectual intercourse to the limits of their particular specialities or departments, but are aware of the more general relations of knowledge. This helps to give them a broader intellectual view—something very much needed at the present time, and indeed at all times. We have no particular technique for developing this broader intellectual outlook. We depend almost wholly on the natural effects of the intimate daily life. Really capable young scholars, living together in frequent and inevitably daily intercourse and representing the principal departments of advanced liberal studies in the arts and sciences, are sure to influence each others' life and thought. This dispels aloofness and adapts them to understand and influence the men they live with. I think this of high value for a college or university teacher.

Now this development not only does not impede, but it helps the progress of the graduate student as a scholar or

* Retired, 1928.

investigator in his own special field. Men do their best work in surroundings which invite them to study hard and also give them the stimulus of working in honorable emulation with all the members of their scholarly community. It is in their spare time they have the daily chances for the casual and informal contact with their fellows in things intellectual, personal and social. Here is where they get the refreshment and revival of their energies. They themselves and the records they have made are the best proof of their high scholarly success. Their marked success depends on their being a body of unusually promising young scholars, picked by competition, enjoying an intimate common residential life and the guidance of able professors.

TEACHING AT THE UNIVERSITY OF MINNESOTA

DEAN MELVIN E. HAGGERTY, The College of Education

The purpose of this discussion is to sketch some attempts at improving college instruction and administration undertaken at the University of Minnesota in recent years. The agencies concerned in these efforts are numerous and varied, involving individual instructors, administrative units such as departments and colleges, and special committees created for the purpose of forwarding experimental work. Local interest has been widely aroused and cooperation in educational research in the college field has generously arisen, often from unexpected quarters. The major investigations have taken place during the administration of President Coffman and have had his sympathetic support.

Within the limited scope of this paper it will be possible merely to outline certain typical investigations, but from them the reader may glean something of the present spirit of the institution as well as the results of these researches.

EDUCATIONAL GUIDANCE

Experimental study of the problems of educational guidance at Minnesota extends over a period of a dozen or more years. The nature of these studies may be suggested by reference to the use of psychological examinations. In the spring of 1916 the writer gave group intelligence examinations to the body of students who were candidates for entrance to the University Medical School. In the autumn of 1917 the Army Group Intelligence Examination "A" was given to all students in the University, and through all succeeding years intelligence examinations have been given in different colleges in the University. During the last half-dozen years all freshmen in the College of Science,

Literature and the Arts, in the College of Engineering and Architecture, in the School of Chemistry, in the College of Agriculture, Forestry and Home Economics, and in the College of Education have been given group intelligence examinations at the time of entrance. For the current year, these examinations have been given to seniors graduating from Minnesota high schools who were assembled at convenient examining points throughout the State. Approximately five thousand students were thus tested in May, 1928. The results have been made available not alone to the several colleges admitting freshmen in the University of Minnesota but to all other colleges in Minnesota desiring to make use of the resultant scores.

At different times the active work with these examinations has engaged the efforts of many university officers and instructors, but chiefly of Dean Johnston of the College of Science, Literature and the Arts, of Professors Miller and Paterson and other instructors and graduate students in psychology and education.

During all this period of psychological testing the University has maintained an essentially experimental attitude. The tests have been numerous and varied and the results have been subjected to rigid scrutiny by all the devices known to experimental education. The immediate aim has been to discover the degree to which psychological tests could be effectively used in the improvement of educational guidance. At no time have the results of such examinaations been used as a basis of college entrance.

The scores of the psychological tests have been widely used for the following purposes: (1) to advise high school graduates as to the likelihood of success in college work; (2) to select high school graduates for fellowship awards at the university; (3) to select and segregate students of like ability into class units for purposes of instruction; (4) for the early discovery of gifted and worthy students; (5) for the improved guidance of students in the choice of professional or other work; (6) as evidence of the cause for

student failures and the possibility of remedial work; (7) in the diagnosis of mental hygiene cases; (8) in the diagnosis of cases of student dishonesty; (9) for the initiation of experiments in the technique of college instruction; (10) for the control of conditions in experimental studies of teaching; (11) for the evaluation of numerous factors contributing to student success.

The psychological tests are but a single item in the improved program of student counseling developed in recent years. This brief description may suggest the nature and the spirit of these changes.

Efficiency of Instruction in Large Classes

Like other educational institutions, the University of Minnesota has been faced not merely with an increase in its total student registration but with an irrepressible growth in the size of classes in which students must be instructed. To the minds of many college teachers this development presages a decrease in the quality of instruction and a consequent decline in the level of student work. Many of the best college instructors here and elsewhere share this view. Stimulated by this condition and encouraged by the success of certain investigations in the high school and elementary school fields in regard to the size of classes, the University of Minnesota created a committee to study the problem. Specifically it was proposed "to study the achievements of students when instruction is given in small classes, in classes of medium size, and in classes which are large." This committee, of which Professor Hudelson is the chairman and which numbered in its membership a professor of psychology, a professor of education, a professor of anatomy, the Dean of the Law School, and one graduate student in education, has now completed the experimental investigation and its report is available in printed form.

Investigation has been made of the trends in class size over a six-year period since 1920 and the records which

students make in classes of different sizes. This investigation has been supplemented by extended questionnaire studies among the members of the faculty and students of the University. More important than these studies, however, has been the experimental work which, to quote from Professor Hudelson's report,

> involved fifty-nine fully or semi-controlled experiments involving 108 classes under twenty-one instructors in eleven departments in four colleges of the University of Minnesota. The experiment involved 5,879 students—4,025 in large classes and 1,854 in small. Direct man-to-man comparisons were made upon 1,288 pairs of students, carefully matched as to intelligence and scholarship. The final criterion was student achievement as measured by tests and examinations, most of which were objective.
>
> In forty-six of the experiments, or seventy-eight per cent., a more or less decided advantage accrued to the paired students in the large sections. Only in the remaining thirteen, or twenty-two per cent., was there any advantage in favor of the smaller classes. At every intelligence level the paired students in the large sections excelled their mates in the small. Except at the very extreme, where results favored the superior students, the relative gain in achievement was no greater for the higher levels of intelligence than for the lower. It would seem that except in the case of a few exceptionally capable and zealous students there is considerable waste of intelligence in both large and small classes. At every scholarship level the paired students in the large sections outstripped their mates in the small. The excellent scholars profited somewhat more from large classes than did their less conspicuous classmates. Large classes seem to have spurred every type of student to higher levels of attainment.
>
> *Conclusions.*—Since small classes, other things being equal, greatly increase cost of instruction, they must be justified on other grounds. In the light of the consistent results of this investigation, it would seem that it will be extremely difficult to justify them on the ground of superior student achievement.

Further conclusions of the report may be quoted as follows:

> In the light of all available evidence, class size seems to be a relatively minor factor in educational efficiency, measured in terms of student achievement. What the major factors are we do not

know; to be determined they must be isolated, controlled, and tested one at a time. Neither do we know whether there are important educational outcomes other than achievement accruing, or at last accruable, only from small classes or whether experiments by other instructors using the same or different teaching methods in the same or other departments or courses would produce similar results. All that can be said is that in the courses investigated, the effect of class size upon student achievement is, in the opinion of the Sub-Committee, too slight to warrant the cost of small classes.

It hardly seems reasonable that the same techniques of instruction are equally suitable to all sizes of classes; yet few efforts have been made studiously to adapt teaching methods to class size. Conclusions, therefore, are in the main based upon a comparison of traditional small-class methods versus slightly modified small-class methods. It may be that efficiency of instruction in small classes is now far below the maximum and that attention to technique could push the level of effectiveness above the maximum for large classes. What may be needed is a complete breaking away from tradition and the devising of instructional methods suited to the demands of modern higher education. The general coercive policies which prevail in colleges and universities may actually be doing injustice in the name of education.

Changes in class size policy, however desirable, are certain to be of such import and to involve so many other educational factors that they should be neither precipitously adopted, irrationally resisted, nor complacently ignored. They should, rather, be prepared for; for the necessary adaptations in budgeting, organization, buildings, curriculum, and instructional procedure cannot be effected overnight.

Every teacher is morally obligated to contribute his part to educational efficiency. If he can teach, or learn to teach, larger classes with little or no loss of effectiveness to his students, neither prejudice, preference, nor tradition should deter him from contributing that much to educational economy; but if after a thorough, sincere trial he finds that he can not, no amount of pressure should induce him to continue the attempt. He should, instead, contribute his part in other ways; for educational efficiency consists in each one's doing to his utmost what *he* can do best. If true teaching is less a matter of educating people and more a matter of giving them guidance and practice in educating themselves, large classes may prove to be ideal educational institutions.

This investigation of class size is by no means exhaustive. Some of the issues involved have barely been raised and others have not

even been broached. Before any of them can be definitely settled, much long-continued and carefully-controlled experimentation will be necessary. It is to be hoped that the present study may serve as a point of departure for such eminently worth-while research.
—*Report by Committee on Educational Research, 1926–27; p. 3–4.*

Studying the Teaching of Science

In the academic year 1925–26 a special committee composed largely of the teachers of science in the University was created "to study current methods of instruction in the field of the laboratory sciences, and to promote experiments and investigations related thereto." This committee, headed by Dean E. M. Freeman, Professor of Plant Pathology, has been active through a period of three years. Two comprehensive reports are in process of being printed and a third should be ready within a few months. Experimental investigations have been carried through in the following sciences: physics, chemistry, zoology, botany and the sequent sciences in the fields of agriculture and forestry, physiology, anatomy, and educational psychology. These experiments have covered such matters as, (1) The development and use of objective examinations; (2) The value of laboratory instruction as compared with library work; (3) The value of the laboratory as compared with lectures and recitations; (4) The usefulness of particular laboratory procedures; (5) The analysis and functioning of accepted prerequisites; (6) The relation of successs in science study to the general abilities of the student; (7) The factor of forgetting in the mastery of science materials; (8) An analysis of the supposedly peculiar values of laboratory instruction; (9) The critical evaluation of the experimental procedures used in studying science-teaching problems, and (10) Remedial proposals designed to repair revealed deficiencies in science instruction.

Wide interest in these researches has arisen in the faculty. At a conference where the results were reported, one hundred and forty university teachers of science were

present. On this occasion President Coffman spoke as follows:

> I would rather have the reports of experimental investigations related to the teaching of science than all the resolutions of all the higher institutions in the country. If we cannot maintain the same standards in our investigations of the teaching of science, if we cannot do the same things with matters that pertain to instruction in physiology or in engineering that we do in the study of the sciences themselves, then I have great fear for the future of education. I do not know when I have attended a better meeting than this which we are now bringing to a close.

A Curriculum Study

In the College of Education the faculty have cooperated in a thorough-going analysis and evaluation of the professional courses required of students preparing for secondary school teaching. Professor W. E. Peik has been the responsible director of the study and has prepared a comprehensive report covering a four-year investigation. This research proceeded from a complete analysis of a six-course twenty-five quarter credit requirement into elemental units. From this analysis, based upon syllabi, text-books, reading lists, examination questions and other evidences of curriculum content, a list of 816 instructional topics was derived. This list was examined in detail by the course instructors for the following facts:

1. The content of each course.
2. The time allotments to topics.
3. The extent of regular and incidental treatment.
4. Amount of reference reading assignment.
5. The articulation of recurring treatment.
6. Overlapping and duplication.
7. Standardization of special methods courses.

The list was also submitted to representative alumni with the following directions:

1. Check those topics the treatment of which you recall.
2. Check those topics the treatment of which has been of direct help to you in actual classroom teaching.
3. Check those topics the treatment of which has been of direct or indirect helpfulness to you in educational thinking.
4. Check those topics the treatment of which you would recommend to be omitted.
5. Check those topics the treatment of which you believe to have been inadequate for your best early success as a teacher.

As a result of these examinations and evaluations it has been possible to rate each of the 816 topics on seventeen percentile scales of merit. Basing his judgment upon these objective ratings and other available data, Professor Peik has given a final evaluation to each of the items. The results are now available for faculty use in the improvement of required courses.

The investigations thus detailed are presented as illustrative of a much wider range of studies that have been completed or are now under way. Among the additional studies may be listed the following: (1) The analysis of the marking system at the University of Minnesota; (2) The evaluation of the extra-curricular activities of college students; (3) The mental hygiene of college students; (4) The teaching of the social sciences in college; (5) The reading abilities of college students and their relation to college success; (6) The problem of prerequisite courses; (7) The qualities and techniques of recognized superior college teachers, and (8) the relation of the university to its alumni.

The major portion of these investigations has gone forward under the direction of the University Committee on Educational Research or in close affiliation with it. The writer has elsewhere stated the general philosophy of this committee and believes it sufficiently important to quote in this connection:

1. The growth of the American university has rendered acute many of the traditional problems of college education and has created certain new problems. Concerning these problems there are both staunchly held and often diverse opinions. There is also much vagueness and doubt. About many of them there is little factual knowledge, a deficiency that makes fertile soil for the persistence of educational superstitions and vagaries. The committee believes that progress may be made and college education bettered by submitting some of these problems to scientific and experimental examination.

2. The success attending the rapidly developing methods of educational research in other fields warrants their application to the college field. It is recognized that, for the most part, the available techniques must be modified and that new ones must be invented in view of the peculiar nature of college education. Notwithstanding, ample grounds exist for believing that the problems of the college are not inscrutable by the methods of science. The genius of investigating at this time lies in the capacity to invent the methods for effective scrutiny, and, in particular, to devise procedures by which important problems may be submitted to experimental examination.

3. One of the essential conditions of much of the educational research desirable in universities is that it be widely understood and appreciated by the university faculty. One effective means for developing such understanding and appreciation is that faculty members actually participate in educational investigations and publication. The number of such persons in a university faculty whose interests and abilities enable them to engage in such activities is greater than is generally supposed, and one function of an educational research committee is to discover such persons and encourage them in such work.

4. Most of our universities are in need of developing a professional attitude toward the educational problems they confront. Many able faculty members who are professional in regard to science, to scholarship, to art, to certain select vocations, are in reality the merest tyros in regard to education. They will toil interminably to establish with experimental proof some fact in science, and in a moment of leisure, they will turn about, and, while standing upon one foot, will settle with a wave of the hand the profoundest of educational questions. The effective antidote to such amateurishness and dilettantism in educational discussion is a body of factual knowledge and one function of our committee is to create an atmosphere that will be conducive to the serious study of university education. This it has sought to do by enlisting a large number of the faculty in its various enterprises.

One of the incidental results of this extensive research in the problems of college education is the effect which it has upon the faculty discussion of educational problems, the free and uncharted course of which is being seriously hampered by slowly accumulating factual knowledge. The time is far distant when all educational procedures can be supported by the assurance which such knowledge gives, but a fragment of genuine fact is certain gain and worth its cost in effort and money.

TEACHING METHODS AT ANTIOCH

PRESIDENT ARTHUR E. MORGAN

When Horace Mann became its first president in 1853, Antioch College represented an attempt to break free from traditional concepts of college education and to redefine the place of the college in American life. A surprising number of what are now accepted principles and methods of American higher education appeared as radical innovations in the Antioch of Horace Mann.

As time passed this spirit of critical inquiry and adventure waned. In 1920 a reorganization of the college was begun, and again an attempt was made to redefine the function of the American college. The present Antioch program did not grow by chance. It was formulated after more than fifteen years of preparatory study. Each element has been added only as it appeared to increase the substantial value of the entire pattern. Relieved from arbitrary dictation by tradition, and with an experimental attitude directed by a clearly defined philosophy of education, Antioch is free to adapt ideas and methods as they are developed either here or elsewhere.

The college catalogue has the following statement concerning the curriculum:

> The college regards its students not merely as future technicians who must be prepared for the skillful practice of their vocations, and not merely as persons to be provided with the tastes and graces necessary for the enjoyment of leisure. It tries to see them in the future as men and women fitted for all the obligations, opportunities, and relations of life; and it endeavors to provide an education that, so far as possible, will insure symmetrical development. To this end Antioch supplies in a single coördinated curriculum of five or six years the fundamentals of a liberal education, training in the chosen profession or vocation, and practical apprenticeship to life.

The mind and character of the students, rather than a science or any other intellectual discipline or vocational technique, must be the center of symmetry in the educational system. Courses of instruction must be so coördinated that the college is a unit rather than an aggregate of departments, each bidding for the student's attention.

Development of the Curriculum

The American college suffers from an excess of departmental autonomy which approximates anarchy, and from lack of internal integration and organization. At Antioch we believe that this integration can best be achieved by the faculty itself. A strong faculty committee on curriculum works throughout the year. The general structure of the curriculum is studied continuously. Hearings are held with each department, and with groups of departments which have intimate relations, in an effort to eliminate casual duplication, to fill undesirable gaps, to compare methods and contents and relative need and value of courses, to bring unity and structure into the curriculum as a whole, and to exercise such discipline as is necessary to maintain good proportions.

Each year the report of the curriculum committee is discussed point by point at successive meetings of the entire faculty, and a final report is adopted which determines the curriculum for the coming year. The formal conclusions generally but record a consensus of judgment gradually arrived at. Much departmental autonomy remains, but it is properly related to the inclusive aims of the college.

As the conditions of normal growth and evolution are discovered and achieved there are progressively fewer revolutionary changes in general policy, and attention becomes directed to eliminating incongruities and to perfecting the elements of the curriculum. An innovation may be discussed for years and then tried experimentally and compared with results elsewhere before it is accepted or rejected. Few elements of the Antioch curriculum continue to hold their places simply by inertia or oversight.

This paper is not a suitable occasion for discussing the structure of the Antioch curriculum, the required liberal courses occupying a third to a half of the student's time, the "fields of concentration," which combine the value of the undergraduate "major" with education for one's dominant life interest, or the part-time working program of the college. The way in which these and health education, training for social responsibility and other aims, are made integral part of a single organic program has been elsewhere described. Only certain innovations of methods will be outlined.

Sequence of Courses

The policy of requiring courses to be taken in certain sequence is carried much further at Antioch than in most colleges in which there is a similar wide range of election. A single case will illustrate this policy.

General college chemistry, or at least an excellent high-school course in that subject, must precede general biology. If the instructor in biology can assume this background he can make much more substantial and rapid progress. Similarly biology must precede psychology. Given a background of biology in his students, the instructor in psychology can treat his subject in a more fundamental manner and also can make much greater progress.

In the design and administration of the curriculum there are many such opportunities for increasing the productiveness of the student's years. It is by pursuing such genuine economies that Antioch is able in five or six years (vacations are limited to five weeks in summer and one in winter) to provide an exceptionally rich liberal education, substantial preparation for a major life interest, and practical experience in living and working.

Contents of Courses

It should be an axiom in college teaching that the contents of any course should be determined by the place it is

to take in the education of the student. Beginning in 1921, Antioch has made progress toward this end.

Here, again, a case will suffice. A course in general chemistry is required for every student. For some this is of general cultural interest, and will be the only course in chemistry taken at college, while technical students require more extensive work. Antioch provides two courses in freshman chemistry. One covers the entire field in the degree of detail and in the manner which a single year of work makes possible and desirable. The other, the first of a two-year course in general chemistry, is an exacting technical course, to provide foundation for specialization. Other subjects are treated in the same manner.

Sectioning Classes

In addition to the exceptionally thorough investigation of applicants, entering freshmen are examined after arrival in English, mathematics, history and chemistry, and the classes in these subjects are then sectionized according to ability; or, as in chemistry, the work of abler students is given greater range and content, while they remain in the same classes as the average students, and help to maintain interest. Both methods work well, each being superior to the other in certain cases.

In addition, students especially weak in mathematics and in English are placed in special "clinics," where in "no credit" courses they make up for inadequate preparation, or demonstrate their inability to do the quality of work Antioch requires. Exceptionally able students also are singled out, encouraged to increase the range, speed or thoroughness of their work, and given greater freedom.

Orientation

Orientation courses at Antioch have a different purpose from those in most institutions. They do not aim to compress a liberal education into a single one-year course, but

to orient the student toward his college life. Subjects discussed are the personal budget—the distribution of time for study, recreation, and other uses—the proper place and use of extra-curricular activities, and the need for a sense of relative values in education and after life.

It is entirely possible to arouse in the average student a keen desire for a sense of proportion and an appreciation of "the law of diminishing returns," as applied to the distribution of time and interest among practical and cultural courses, and among economic and cultural incentives. The spirit and aims of the college program, methods and curricula are discussed. Standards of accuracy and integrity in written work are presented.

As part of the orientation work a financial budget and expense account are required of each student for the entire freshman year, and a "time budget" for a single week, the latter to bring to his attention the value of effective distribution of time. To help the freshman student in his coöperative work, the general structure and functions of business are discussed, along with the customs and ethics of labor and management. Weekly discussion groups clear up troublesome questions. Reading and written work require the student to follow through and enlarge upon lectures and discussions.

The Autonomous Plan

This is one of the most notable of Antioch's departures from conventional methods. Begun on a small scale in 1921, it has steadily developed. After the sophomore year all students work under its provisions.

Students under the autonomous program must take the initiative in their own education, and organize their own time. Each is given a syllabus outlining the work to be done in each course, together with necessary bibliographies and laboratory facilities. In the more advanced work the student sometimes is asked to organize his own syllabus under the guidance of the instructor. Lectures or in-

formal discussions are scheduled once a week, but attendance is optional. Group discussions under student leaders, arranged in some courses, also are optional. The instructor is available for conference at stated hours, but here again the student takes the initiative. In order to give the student opportunity to plan his own time, no evidence of work done is required until the end of the regular five-week study period, although in many cases more frequent conferences are encouraged. The results are promising. Low grades and failures have not increased, though an increase was expected, and the best work is of higher quality. The students strongly favor the plan.

Comprehensive Examinations

Course examinations are given at the end of each semester, and these together with the quality of written work submitted and of oral examinations and discussion, furnish the basis for credit. In addition, at the end of the senior year one comprehensive examination is required covering both the main principles and subject matter, and the integration of all of the general required courses. Another is given covering courses included in the field of concentration. These comprehensive examinations still are in a highly experimental stage, but we hope to stimulate the individual to coördinate materials and principles from diverse fields.

Student Participation

Student government works at Antioch and affords opportunity for training in social leadership and responsibility. Students do make their own rules and are actively interested in promoting Antioch quality and standards. A recent example is the appointment by the manager of the Community Council of a student committee to investigate cases of students on probation. It was felt that such a committee might sometimes ascertain causes for failure and help students to make satisfactory adjustments better than

the faculty. Another committee made an extensive study of the autonomous program.

We feel that real integrity is being developed under the honor system by increasing the individual's responsibility for his own conduct and the conduct of his group. Instead of requiring an observer to report cases of cheating to the student government on the first offense, he is expected to remind the offender that such conduct is unsocial. If this suggestion is not effective and cheating continues, the student is obligated to bring the case before student government.

Visitors are sometimes surprised by the limited reliance upon prescribed rules. It is our experience, however, that by expecting integrity we secure integrity.

Community Service

Through this organized activity, which is unique with Antioch, all students above sophomore rank devote from three to four hours of work each week to the college community, assisting faculty members to help students over minor difficulties, conducting discussion groups, grading papers, assisting research in teaching methods, and the like. The work assigned must have educational value for the student, and must be of real service to the community. The student comes to understand the work involved in operating the college. His assistance reduces the expense of our more individualized, and therefore more costly, methods of instruction. During the freshman and sophomore years students spend two hours or more a week on service work. This may be more routine in character, such as showing visitors about the campus or handling the publicity for some college event. In some cases it includes leading boy scout troops in the village, playing in the college orchestra, or putting in order parts of the beautiful and extensive Antioch campus.

Student Faculty Relations

Antioch has no faculty proctors. Each student has a faculty advisor who in many cases assumes a real responsibility for the student's interests. Even more important is the very generally close relationship between students and faculty members. The homes of the latter are commonly open to students, and there is a degree of intimate relationship which probably is not exceeded in any American college.

The "personnel department," which is responsible for placing students on cooperative jobs, is composed of men and women who advise students on the choice of callings, and on every sort of personal problem which arises in planning one's work for a year or for a lifetime. The autonomous program, with its stress upon personal conferences, further increases intimate contact, and periodical medical examinations by the college physicians supply still others. We believe these methods are producing better results than reliance upon proctors.

Autonomy in Teaching

There is much autonomy in teaching methods. The lecture is not obsolete. A lecture well thought out, well organized, and well delivered is a worth while experience. Some men do their best work by lecturing, combined with personal or group conferences. Others never lecture. Some teachers sectionize classes, while others hold classes together, but provide so exacting a syllabus that only a few of the best students can cover the whole ground.

Some faculty members meet students regularly in their homes, others only in office or laboratory. Some present full and definite syllabi, while others require the student to build his own, with advice and criticism of the instructor. Substantial agreement of aim is sought through interchange of views and by the discipline of general policies, but autonomy of methods is maintained except where uniform methods are essential to economy for student or faculty.

Selection of Students

Since in the end the effectiveness of teaching is limited by the quality of students being taught, Antioch exercises great care in admissions, and has developed a process of inquiry and selection which is effective. Identical examinations recently were given to an Antioch freshman class and to more than a thousand freshmen in a great state university. Ten per cent of Antioch freshmen were in the highest one per cent of the other group, eighty-seven per cent of Antioch freshmen graded in the upper half of the other group, and only one Antioch freshman ranked with the lower third of the other group.

Cooperative Work

The cooperative work of the Antioch student is an extension of teaching. The aim of the college is to search the eastern half of America for firms and institutions in which there is great leadership and in which a great tradition is growing, and to place students in employment where they can inherit that spirit. In so far as this aim is pursued with intelligence and skill, the finest personalities in industry and the professions can be given exceptional opportunity to infect with their spirit many more eager and intelligent young men and women. The cooperative program offers undreamed of possibilities for the greatest of all teaching.

In General

In many cases the innovations described were well developed elsewhere before being even tentatively adopted at Antioch. In each case, whether or not they are retained is determined by their value in contributing to the underlying purpose of the college, which the writer recently expressed as follows:

> Antioch attempts to make a deliberate survey of the entire range of major human affairs, and to observe what qualities of body, mind, personality, and character have significant influence on the outcome of living.

It endeavors to discover to what degree and in what manner all these major human qualities may be developed, modified, and disciplined to bring about the total greatest worth of personality.

In making this appraisal, it does not stop at elements commonly included in a conventional college program. There is no field of human concern of which it will say, "that is outside the proper province of the college." Neither does it take the attitude that while its one real concern is scholarship, various other interests will be tolerated, but with an inferior status. Every human trait and quality is *equally* within its field.

With that appraisal as a guide, Antioch undertakes to build an integrated program which will bring about the best possible development of each significant quality, and it endeavors to give emphasis to each in proportion as it is important in life, not as it is conventionally valued in education. To recognize that individuals vary in the emphasis they can most profitably give to different elements of development, is but to see one of the limitations of mass methods of education.

In order to fulfill such a program, and at the same time to maintain and to raise standards and accomplishments in scholarship, it is necessary to eliminate waste at every step, and to realize to the utmost every educational resource.

HOW WE TEACH AT REED COLLEGE

PRESIDENT NORMAN F. COLEMAN

Teaching methods used in Reed College can best be understood if the following facts are borne in mind. Reed is a small college of liberal arts. Its three hundred students include equal numbers of men and women. It has a faculty of twenty-five full-time teachers. Its budget provides for these teachers (excluding the president) an average salary of $3,360. Its tuition charge is $200 a year. Its students are selected rather carefully from the upper half of high school graduating classes. Its community life is simply organized without the complications and distractions occasioned by fraternities and intercollegiate athletics. It has been in operation only sixteen years and is still comparatively unhampered by traditions and comparatively free to make experimental changes in curriculum and method. These conditions will help the reader to understand the following sketch of the main directions of our educational effort.

First, we teach *cooperatively*. The Reed College Faculty is not divided into departments but into four main divisions—Literature and Language, History and Social Science, Mathematics and Natural Science, and Philosophy, Psychology and Education. Each of these divisions has a chairman elected annually and holds meetings for the discussion of courses, methods, and students. "Orientation" courses are shared by a number of teachers from the same division or from different divisions. Lower division courses are planned in relation to each other so that in content and method one may throw light upon another. Senior students all share in a Colloqium led by the Professor of Philosophy, which meets regularly throughout the year and which invites representative members of the faculty to discuss the meaning and tendencies of our joint educational

effort in relation to the tasks and the problems of mature life. All senior students also submit themselves to a two-hour comprehensive oral examination by teachers, usually from more than one division, assisted by at least one examiner from outside the college.

Second, we teach *individually*. With an average of one teacher to twelve students, and with the aid of a fair number of student and graduate assistants, it is possible for us to do most of our teaching in personal conferences and in group discussions. In these the chief responsibility for the student's intellectual progress is placed squarely upon his shoulders. He is encouraged to form his own opinions and to state and defend them, though they may be in opposition to the opinions of his fellow students or of his teacher. If a student develops an interest which may not well be pursued in a regular course, he is permitted to pursue this interest through a course of independent investigation and reading. Last year we had more than a hundred students pursuing these "independent reading" courses. Finally, the student is expected by the time he enters his senior year to have discovered a special topic for independent study which he must develop into an acceptable graduation thesis. Upon the subject of this thesis approximately half the time of the oral examination is spent. A student does not graduate from Reed College by accumulating credits but by completing a course designed to develop his initiative and his powers of independent investigation and reflection.

Third, we try to teach *unobtrusively*. We do not always succeed, for the habit is strong in us, as in other teachers, of urging upon students our special information and advice as if it were the most important the world had to offer for the guidance of their young lives. But we do give a reasonable degree of freedom to seek and choose for themselves. We do not compel them to listen to us. We do not mark class attendance, and we have no system of cuts, excuses, and penalties. As a matter of fact, it is not un-

common to find groups of upperclass students carrying on discussions and investigations with no teacher present. When I have asked such a group where their teacher was, the reply has been, "Oh, he is within reach. We can find him if we need him." We hope to go further in this direction for we think we discover that a teacher becomes more highly valued and valuable when he learns to be accessible but not conspicuous, when he is at hand to help but not to dominate.

Fourth, we are learning to teach *informally*. The desk and the raised platform are gone from our midst. Gone also is the gulf fixed between professors and students, across which, by tradition, long distance communication has been conducted. Our favorite classroom arrangement provides a table with a dozen chairs around it. About this table students and teachers gather. Discussion ranges back and forth and up and down, and the visitor who looks in upon the session sometimes has to look twice in order to distinguish the teacher from the students. Happily the members of the group may sometimes forget the distinction and all may become students together. This informal relation has been encouraged by intimate association in government, social entertainment, and physical recreation. Teachers and students sit together in the Community Council, talk and sing and dance together in discussion clubs, concerts and balls, and play together at tennis, golf, baseball, handball and volley-ball. We doubt if any curricular arrangement or administrative machinery can be educationally effective unless it promotes this kind of friendly intercourse between teachers and students. By means of such informal, personal relations, the older and the younger learn from each other, real problems come out for discussion, real obstacles in the way of wise and happy living are attacked and perchance removed.

These four tendencies have characterized Reed College teaching from the beginning. The first, in particular, has been stressed in recent years in the working out, for the

freshmen and sophomores, of groups of required courses constituting about four-fifths of the students' work. These constitute a central core of studies, closely related to each other in plan and presentation, and dealing with the "fundamental bases and historical backgrounds of contemporary life." They include the principal periods and movements in literature and history as these illustrate "the progress of man in cooperative effort and group action and in the mastery of his physical environment." After two years of study largely directed to a general view of the achievements of the race in literature and art and in social and political institutions, the student is expected to indicate his major interest, and is allowed considerable freedom in pursuing that interest. He is, in the upper years, relatively free from course requirements and proceeds to graduation by completing a program of work arranged in consultation with his adviser and approved by the Division in which his major interest lies. This program does not consist in the accumulation of a fixed number of credits, but in a unified and coordinated group of studies definitely related to the student's work in his earlier years and to his vocational choice or inclination.

The reader has perceived that there is nothing novel in this outline of methods. All the elements of the Reed College program are to be found elsewhere. We have perhaps two advantages over larger and older institutions. We can organize our educational forces for more concentrated and continuous effort in one direction, and we can experiment easily and freely. We have made important changes this year and we shall doubtless make others next year. We are not attempting to standardize our work. We are, however, greatly concerned to preserve and develop unity of aim and spirit.

THE WORKSHOP METHOD OF TEACHING IN ROLLINS COLLEGE

DEAN GEORGE E. CARROTHERS*

Rollins College, a non-denominational institution with a self-perpetuating board of trustees, is a small four-year liberal arts college situated in the beautiful lake region of central Florida. It is the oldest institution of higher learning in the State of Florida, having been established in the early eighties by the Congregational Church. Three years ago the board of trustees selected Dr. Hamilton Holt as president and since that time the college has taken on new life. Many new faculty members have been selected, salaries have been greatly increased, student enrollment has doubled, and a workshop or conference plan of teaching has been adopted for the entire college.

ROLLINS TO REMAIN A SMALL COLLEGE

One of the apparent ambitions of most colleges is to excel their sister institutions in numbers. Even in many states where it is recognized that colleges and universities are much like great factories, turning out an ever-increasing number of unit products instead of developing individuality, there is still a desire for large numbers. Rollins College has now an enrolment of approximately 325, which is about as large a number as can be handled well with the present staff and equipment. The desire of faculty and president alike is to do well the work of a small college.

Three years ago the president and board of trustees definitely stated that at no time would they admit more than 700 students—400 men and 300 women. Under the usual method of college teaching, it would be possible at the

* Since resigned.

present time to handle approximately 600 students with the present staff and equipment. For the year 1928–29, however, it was decided that not more than a total of 350 to 360 regular students should be accepted, since this is the maximum number which can be handled effectively under the present method of teaching.

The Workshop Method

Under the usual plan for college teaching, the instructor gives a series of lectures from two to five times a week. He assigns readings, sometimes in a chosen text and always in reference books and periodicals. At the end of a term or semester a formal examination is held; the papers are marked either by the instructor or by an assistant, and the final grades are recorded. The student has performed or has failed to perform the required number of assigned tasks and is accordingly marked "Passed" or "Failed." The limitations of this system for producing genuine education are evident to administrators in many colleges.

The system now being worked out in Rollins College is the seminar or workshop plan, the purpose of which is to bring the student and the instructor into the closest possible contact. Group-study periods are scheduled from 8:00 to 10:00 A. M. and from 10:30 A. M. to 12:30 P. M., with chapel or assembly from 10:00 to 10:30. A few academic subjects are placed in the afternoon from 1:30 to 3:30. For the most part, however, afternoons are used for laboratory work, for field trips and excursions and for such other informal exercises as may be considered a necessary part of the educational program.

Students sign up for classes in the usual manner, arranging their schedules so that two full hours may be spent with each instructor. The theory is that immature students who have not learned how to study effectively need the help of an instructor most when they are preparing their lessons rather than after they have learned them or failed to learn them. In some instances, particularly in the

case of the younger untrained students, the instructor at times must approach the method of supervised study and not only teach the student how to prepare his work but see that he gets it done. In the course of time, when a more careful selection of students is made, when the faculty comes to understand the method better, and when students come to realize that the responsibility of securing an education is dependent on *their* actions and attitude, it is hoped that the need for even a partial use of the supervised-study method will disappear.

General outlines of courses are furnished to the students that they may know the approximate expectation for the term or year in each course. Specific outlines, references, topics, and questions are in many instances supplied by the instructor to facilitate the more economical study and mastery of the subject. The "lock-step" method of procedure has been eliminated, and students are permitted to progress as rapidly as they wish or are able.

During the two-hour period students spend their time in study, in conferring with the instructor, in holding discussions in small groups, in developing outlines, in writing class papers, and in other preparation incident to the mastery of the subject. At times the whole group may be called together for a conference on a common topic usually with the instructor as the leader of the discussion. In many classes students are allowed to leave the room as they desire. They return at their own pleasure and quietly resume their work where they left it. In some courses the more mature students are not held to full attendance on the two-hour session. They are permitted to prepare their work in any place and manner they may desire. As occasion demands they return to the classroom to consult the instructor, to join in a general conference or to participate in any other necessary departmental activity. Most of the students prefer to remain in the classroom with the group, since this room usually contains the reference books, maps, and other equipment necessary for good work.

The Teaching Load

Colleges usually assign an average of eleven to thirteen credit hours of teaching to each instructor. The laboratory work of two hours is usually thought of as equivalent to one hour of formal lecture-recitation teaching. Even though the teaching in Rollins College is entirely on the laboratory or workshop basis it was considered unwise to give to any instructor thirteen credit hours of teaching or twenty-six hours of actual classroom work. The load was reduced to an average of ten or eleven credit hours for each instructor. The classes, too, were kept to a small enrolment, and other necessary requirements were adhered to in order to facilitate the best kind of teaching and learning. During the year 1927–28 each instructor had an average of only forty students in his classes. The average class size was eleven.

Faculty Limitations

The success of any undertaking, particularly if it is in the nature of an experiment, depends to a considerable extent upon the attitude, ability and previous habits of those who direct and participate in the experiment. An idea, new or old, may be entirely practicable, the plans for execution may be of the best, and there may be a common desire on the part of all to see the project go forward successfully, yet progress may come slowly and with difficulty. Even with all these as assets, progress in the Rollins College experiment is sure to come slowly and painfully in certain departments. Some professors with an interest in the experiment and with a desire to see it succeed find themselves unable to contribute much to the progress on account of previous teaching habits.

Class Attendance

Placing teaching on the workshop basis at once suggests the need for the presence of every worker during the working period. It is no longer a question of putting in time, it is a question of accomplishing results. Employees in

business would not think of taking from three to five days out of every half year as "cuts" from regular work. On the contrary, there is an esprit de corps in business which demands the presence of every member of the organization who is not absent through illness or otherwise accounted for.

An employee in industry in order better to concentrate upon his work may go to the general workshop, to the library, or to other rooms for a few hours or longer. These people are not "cutting"; they are legally away from their usual places of business. Thus it is with students and teachers in Rollins College—at least this is the hope and ambition of the administration. In time it is hoped that a spirit of interest will be developed so that a student will no more think of cutting classes and trying later to cajole the professor into excusing him than the same young man would think of cutting his work for a day now and then if he were delivering papers, running a train or commanding an army. The adolescent period is the time to establish habits of faithfulness.

The absence of a direct and immediate economic return for the faithful performance of college work will probably always present certain limitations to the smooth operation of the "no cut" plan of college organization. With all of its limitations, however, the plan is worthy of a fair trial since no dean known to the writer has as yet been able in the traditional college to handle cuts to his entire satisfaction.

Physical Welfare of Students

Present day education is beginning to give increasing attention to the health of students. The Rollins College plan is to have each student pay a $5.00 health fee and then to receive without further cost to him at least one careful physical examination each year, instruction in health and personal hygiene, medical attention throughout the year, and required participation in outdoor sports and exercises three to five times each week. While Rollins will

continue to have football, basketball, track, and other teams for inter-college competition, the major emphasis will not be on the production of winning teams. There is no desire to imitate the large universities with their gigantic stadiums, their million-dollar athletic programs or their over-development of the few to the entire neglect of large numbers who are in special need of healthful recreation and corrective exercise.

The plan at Rollins College is to have for the most part academic work during the forenoons, laboratory and field trips in the afternoons until 3:30 or 4:00, then general participation in outdoor sports from 4:00 to 6:00. This is possible in a mild dry climate such as that found in central Florida during the months from October to May.

Recognition of Individuality

The desire on the part of the Rollins College administrators is that an atmosphere of acquaintance, of confidence and mutual respect may be developed between students and faculty. The students desire to be treated as grown young men and young women and they have a right to that kind of treatment. They are in college to obtain an education as a foundation for useful, happy living. The teachers and administrators are there not as police or detectives but as friends and helpers. Presumably the staff can be of help to the students and presumably the students want and need help.

Measuring Results

Rollins College, together with every other college in this country, faces the perplexing problem of measuring the results of teaching. There is thus far but little progress to be reported in this field from Rollins. The final-week-of-examination spasm usually scheduled for the whole college has been eliminated. That is at least one great gain.

In the course of time, with small classes organized on the workshop or business basis, with students in constant asso-

ciation with the teachers, it may be that in many courses a final term examination will be wholly unnecessary. In a store or office with scores of workers associated with the heads of departments it is not considered necessary to give a final examination every six months to determine how well each individual has done his work. The numerous indications of work well done day by day, or carelessly done, are far better criteria for the guidance of business managers than any "set" examination could be. Similar criteria may in time be found better for the guidance of college professors.

The Cost

Among other items which add to the cost, the following should be mentioned:

1. The assignment of fewer hours of college teaching to each instructor.
2. The keeping of class enrolment below twenty-five and the average enrolment down to eleven or twelve.
3. A classroom assigned to each instructor in order that he may develop a departmental library and secure other adequate equipment for his specific work.
4. Provision for additional reference books, dictionaries, tables, and other equipment for each room.

Conclusion

The workshop method of teaching for an entire college has now had a trial of two years in Rollins College. As yet no attempt has been made in a scientific manner to measure results. There are, however, some rather clear indications that this method of teaching does provide for a better development of the individuality of each student.

Some of the members of the faculty who have worked under other systems think the present method a decided improvement over the usual method of college teaching. Visitors from other institutions have said that Rollins students seem to be better able to do work on their own initiative than most of the other students with whom they

have come into contact. An exchange professor who taught in Rollins College during 1927–28 said that he found a larger percentage of "good" students in his classes this past year than had been his experience with college classes in former years. A representative of the Association of Colleges and Secondary Schools of the Southern States—an excellent teacher of languages—spent a few days at Rollins in October, 1927. He visited a large number of classes and spent some time observing the work done in the Department of Foreign Languages. His testimony was that the students did seem to be getting a first-class acquaintance with the languages.

Other observations might be noted but the above statements are sufficient to give the reader at least an indication of the results which it is thought are now being accomplished. Obviously the next step, a step which must be taken before any general belief in the workshop method can be hoped for, must be the scientific testing of students and of accomplishments. Plans for this next step have already received consideration.

TEACHING HONORS STUDENTS AT SWARTHMORE

DEAN RAYMOND WALTERS

If, seated on a bench near the oak-bordered walk of Swarthmore College, you watched a group of honors students bound for the library. you could not by any outward sign distinguish between them and any other group of students who had just left a recitation in Parrish Hall. They would appear simply as wholesome, well-set-up young men and women, certain to be out on the playing fields in the late afternoon.

Talking with them about their work would reveal something; "sitting in" at a seminar session would disclose more; but it would require the rather impossible task of being with them day after day for a week to show at all adequately how the honors plan of education is operating at Swarthmore. For the heart of it lies not in how these undergraduates are being taught but in how they are learning.

In the case of students in the general courses you could look at the official schedule and in it read the familiar story of lectures, recitations, laboratory exercises and quizzes on many subjects which, in the fullness of time and barring accident, lead to 120 semester hours and a bachelor of arts degree. With honors students there is no official schedule, none of the ordinary machinery of classes and credits. For the latter two years of their college course, after proving their ability and character in the routine requirements of the first two years, these students are free to devote themselves to a few subjects in related fields and then to demonstrate their knowledge of the field in a series of comprehensive examinations, written and oral. The final examinations are set, not by the Swarthmore professors who guide the students in their honors reading, but by professors of other colleges and universities.

The ways in which honors undergraduates do their job of self-education are as varied as the personalities of these young men and women themselves. It is a virtue of the plan that it affords freedom for the individual to work up material in his own fashion within the limits of the week as a unit for assignment and discussion.

Honors students do their reading whenever and wherever they choose. Most of them choose to start early in the day, and shortly after breakfast you will find them in the seminar rooms of the college library, in the departmental libraries, in their own dormitory rooms and sometimes, on pleasant fall or spring days, on the campus benches. Instead of being compelled to flit from one class in this to another in that, and to a third in something else, they have the whole morning for uninterrupted attention to Chaucer's *Troilus and Cressida* or to Bryce's *American Commonwealth* or to vector analysis or to comparative neurology. Here they have a training which develops capacity for what the French call work *de longue haleine,* of long breath; a capacity demanded for success in every intellectual and scientific field and likewise in the professions and business. These honors students attack and push through their tasks as though, in the words of a parent of one student, "they were in business for themselves."

Along with their reading for the week the honors students have assignments which give opportunity for some measure of creative expression. In the social science and English divisions this is the writing of papers on some phase of their reading; in the natural sciences it is solving some problem in the laboratory. In all honors divisions there are questioning, discussion and debate in the seminar or conference meetings, which are held two, and, in a few instances, three times a week.

A typical honors group in the Social Science or English divisions would include five to seven juniors or seniors and one or two faculty members, assembled at two o'clock in an attractive seminar room with easy-chair informality.

Either at the start or the end of the session, the students select topics on which to write papers from those listed in the mimeographed syllabus of study for the coming week. The professor in charge calls upon Mr. Brown or Miss Smith and there follows the reading of a paper which represents a good many hours of delving into sources, plus the student's own thinking. All in the group have gone over each topic and they comment on the paper. In the Social Science division the very character of the subjects—politics, economics, sociology—leads to argument, often of the liveliest sort. For two hours at least and usually longer, the presentation and discussion go on. Miles removed from routine class-recitation is this give-and-take of the honors seminar, with the professor serving not as a schoolmaster among pupils but as an older scholar guiding younger scholars. The pursuit of knowledge here becomes a reality.

It will thus be seen that there is a combination of the independent study method, with its fostering of sustained application and thinking, and the seminar group method, with its variety and stimulus; and it is precisely this combination, together with external examining, which makes the Swarthmore honors work distinctive in American college education.

How Honors Subjects are Grouped

The Swarthmore honors plan* follows the aim set forth by President Aydelotte in his inaugural address in 1921 of giving "to those students who are really interested in the intellectual life harder and more independent work than could be profitably given those whose devotion to matters of the intellect is less keen." This opportunity is afforded in ten fields of knowledge, not single subjects but related groups of subjects:

* For additional details, readers are referred to the excellent book by Dr. R. C. Brooks, *Reading for Honors at Swarthmore, 1922–27*, published by the Oxford University Press, American Branch, 35 West 32nd Street, New York City.

Division of English Literature, Modern History, Philosophy, and Fine Arts
Division of the Social Sciences: Political Science, Economics, History, and Philosophy
Division of Mathematics, Astronomy, and Physics
Division of French: History, Language, Ideas, and Literature
Division of the Classics: the Greek or the Latin Language, Greek Moral and Political Philosophy, and the Histories of Ancient Greece and Rome; with Greek and Roman Fine Art as optional
Division of German: Language, Literature, Philosophy, and History
Division of Chemistry: Senior year in Organic, Physical, Electro and Colloid Chemistry
Division of Education: Philosophy of Education, Educational Sociology, Educational Psychology, and History of Education, with electives in other fields
Division of Engineering: Senior year in Advanced Technology or in Economics or Industrial Subjects
Division of Physiology-Zoology: Physiology, Zoology, and four elective honors courses of other departments

The scope of the field for the two years is outlined in the divisional syllabus, prepared by the allied departments. Students are thereby afforded definite information as to the ground over which they will face written and oral examination by the external examiners.

Extension of the Honors Principle

The honors idea of a qualitative rather than a quantitative standard has been extended at Swarthmore to general courses. Instead of a definite number of semester hours in foreign languages, the requirement now is that all arts students shall demonstrate by examination either proficiency in one foreign language or a reading knowledge of two. Preceding the opening of college in September, entering freshmen take examinations in foreign languages and likewise in mathematics and English which serve to place them in class sections according to ability and also to excuse

them, if they come very well prepared, from prescribed freshman courses in these fields. Freshmen may devote the hours thus released to a new kind of exploration course which, both as to content and instruction, gives a taste of the honors method; or they may go into other courses prerequisite for honors in the fields in which they are interested.

A recent extension of the honors idea at Swarthmore is found in the graduation requirement of comprehensive examination in the major subject for all seniors in the general courses, so that in a sense all undergraduates of the college are doing a portion of their work on the honors principle.

Honors Students and Their Teachers

Members of the faculty keep on the alert for evidences in freshmen and sophomores of the intellectual capacity, ambition and strength of character that are essential for honors study. When the voting takes place upon candidates to read for honors, the instructors rate this third qualification perhaps highest of the three. Success in honors is as much a matter of character as of intellect. These young men and women must have the courage to undertake a large task, the tenacity to stick to it without prodding, and the conviction that the intellectual life has rich rewards.

In summing up it may be said that, in the teaching of honors students at Swarthmore, there are no rules and only a few general principles. Instructors give to juniors who are beginning honors reading certain suggestions as to independent scholarly method; but they assume that the foundations are laid. Particularly do they assume that students come with an active and not a passive attitude. In conducting seminars, instructors are on guard against lecturing or the recitation type of questioning—tendencies to be watched inasmuch as their teaching schedules include both honors and general course work. Throughout there is

an observance of the doctrine of Plato: "A free spirit should learn no piece of learning with slavery."

It is not compulsion from without but the terms and spirit of the whole enterprise which stimulate the undergraduates to gird themselves mentally, as the time of final examination approaches, for the sustained effort of carrying in mind, for ready delivery to external examiners, the main principles of at least three subjects. When this end is achieved—and in the main the Swarthmore honors students have achieved it notably well—these young men and women experience a sense of intellectual mastery which routine work never gives.

HOW WE TEACH AT WHITTIER

DEAN JOSEPH HERSCHEL COFFIN

DAILY DOZENS FOR LOWER DIVISION

Even in the smaller of the small colleges there is likely to be little uniformity in the methods by which sweetness and light are injected into the intellectual life of the student group. Certainly this is true of Whittier College where a canvass of the teaching technique would show at least four methods in use.

California institutions have fallen or risen into the custom of distinguishing rigidly between upper and lower division courses, classes, and methods. For in this state the tendency is in full swing to think of secondary education as continuing to the end of the sophomore year in college. The philosophy and methodology of the junior college which thrives in this luxurious climate emphasize this distinction, and the contagion of it affects all of us.

Accordingly, for freshmen and sophomores, through sheer imitation if nothing else, we find ourselves relying to a large extent upon the secondary methods of text-book assignments, question and answer, and quiz; complemented be lecture, laboratory manual, note-book, and page assignments in the library. So far we have little unusual or unique; only the customary and traditional spoon-feeding.

ROUND-TABLES IN UPPER DIVISION GROUP*

With the upper division students, however, the process becomes considerably more varied. For some—the 'pass student'—in fact the majority, a continuation of the conventional method is quite conspicuous; though even with

* Under the title "A Class Set Free," Dr. C. M. Panunzio, of the Whittier Faculty, has given a more extended description of this method in *The Survey* for June 15, 1928.

these classes the conference or round-table method works to better advantage than the traditional.

In approximately half of the upper division classes something like the following procedure is to be found at least a part of the time.

Here is a class in psychology; an advanced class in the application of psychological data to the problem of personal adjustment. There are twenty-one students enrolled in the course; the class is scheduled to meet on Monday, Wednesday and Friday and carries three hours of credit. By faculty understanding a student is supposed to spend two hours of preparation for each hour of recitation in all classes—a rule which I fear is more honored in the preaching than the practice.

The first meeting of the course was an informal discussion of the possible lines which the semester's work might follow. Out of this discussion grew as an assignment a proposal to perfect an outline of topics for the term's work. Whipping this outline into shape was the work of a week. The class period was habitually used in a round-table discussion of the material brought together by the students from their reading. Search and contribution were the key-principles of the enterprise as the sequence of topics was worked through. After this pooling process and the interpretation which is inevitable, and after the interchange of ideas and criticisms each member undertook to write up his findings. A day was taken for the reading of these findings before the class and subjecting them to the further criticism of the group.

This paper was the first draft of a chapter of a 'monograph' which was to represent the student's findings of the semester. Each successive topic in the outline was treated in the same fashion. The papers were then turned over to the instructor for safe keeping and for grading purposes.

Two weeks before the close of the semester the whole sheaf of a dozen or more chapters was returned to the

student for rewriting and finishing. Revision, unification, cumulative value, sequence turned this dozen papers into a monograph representing a real creative piece of work. It took the place of both quizzes and final examination.

The method has the advantage of being the product of both individual and group study, for each chapter is the result of individual study which has been subjected to group criticism. Neither is it simply a glorified note-book. The instructor's part has been to serve as chairman of the meeting, and to keep lines drawn together. He has at no time had a theory to put over. He has tried with some success to hold the discussion within bounds and to reserve the floor for one student at a time.

Perhaps the 'ground' has not been covered in as methodical a manner as the instructor might have covered it in a lecture program, but as far as real education is concerned he feels that the lecture method cannot begin to compare with the conference in value. The theoretical two hours of preparation for each recitation not infrequently lengthened into a considerably longer period. In the conference the student is a creative agent; and this applies to all the students in greater or lesser degree. Each one has 'produced' something. Of course it is not all equally good—and here is another function of the instructor: to attempt to determine for the registrar *how* good each is.

Directed Reading for the Superior Student

The faculty of this college has also adopted another procedure to contribute to the elasticity of method in the instruction of upper division students. Practically every department provides as the last-numbered course in the list, a course called Directed Reading.

This is strictly an individual study plan within the department. It is so common as to need very little description. The work for the whole semester is outlined in the beginning, the bibliography worked out, and the student set to work on his own time and initiative. Ordinarily an

hour each week is set aside for conference with the instructor, at which time the individual discusses with the instructor what he has read during the week. Sometimes the report takes the form of a report upon a topic, a book review, a digest, an outline or what-not.

The work is closed up at the end of the semester by an examination or not as the instructor desires. More likely it is an oral comprehensive at which other members of the department may be present. This type of work is a bit more difficult for the instructor as well as the student but tremendously valuable for the student—provided he is intellectually and temperamentally equipped for it. More staying power on the part of the student is required than in the round-table method because there is lacking the stimulus of the group. But as a help in discovering and developing graduate students it has much to commend it.

The Project for Effective Students

There is an unacademic type of mind which is nevertheless intellectually effective; there are individuals who wish to be assured that college experience has some relation to life. For these the project plan is available. Initiative, ability to make and execute plans, self-control, ability to work on long time assignments are all characteristics of the individual who would be encouraged to pursue this type of work.

The project is an independent study plan, as well as an honors course. It differs from the former, however, in that the ground covered is much wider, embodying a group of related subjects. It differs from the 'honors course' in that the subjects to be studied are not pre-determined and placed in a fixed group to be elected as a whole. Instead, the grouping of subjects for a given individual is arranged only after a careful study of the person himself has been made; and those subjects are chosen which have a bearing upon his life interest or vocational purpose.

An essential feature of the plan therefore is a career motive on the part of the student which may serve as a polarizing agency or a motivating force for his correlated study. This career motive may be articulated with the correlated reading by means of an apprenticeship. An apprenticeship of observation and practical work is arranged with cooperating firms or institutions in the community in order that a modicum of first-hand experience may serve as the core about which the student's further study may center. For example, if the student's vocational interest is Y. M. C. A. work, his coordinated reading should include religion, psychology, ethics, sociology, literature, physiology and hygiene, emphasis being given in each instance to those phases of the subject which would be most helpful to the prospective leader of young men. The aim of the project is thus to liberalize the individual rather than to give him professional training. But it undertakes to utilize the vocational interest as the motivating force. One always gets liberalized from some point of departure—not just in general. And the career interest constitutes the point of departure.

Other types of project which can be arranged with equal ease and profit are accounting, home-making, journalism law, library work, medicine, ministry, nursing, social service, and teaching. The course which occupies the two upper division years may be completed by a comprehensive examination of the type which has become common in recent days.

The Philosophy of It

What we are working for in these variations of the teaching procedure is a creative attitude in the mind of the student on the one hand, and a nexus between college experience and life on the other hand. Everybody—including the alumni—is agreed that the chief carry-over value of a liberal education is not the knowledge one accumulates, but the attitudes one acquires. But it is not enough merely

to have a liberated mind; the *more* which is required is *creative* liberalness. This is an attitude which through college practice should be transmuted into a creative life technique which will function easily and accurately in the face of life's situations.

THE INDEPENDENT STUDY PLAN AT STANFORD UNIVERSITY

CHAIRMAN EDGAR E. ROBINSON, The Committee on Independent Study

The "exceptional student" has always been of interest to the faculty of Stanford University, and due to a limited enrolment it has been possible in most departments to give him considerable attention in the small classes of the junior and senior years. As far as his time was taken by the major subject he was given unusual opportunity to show his capacity and to develop his abilities. Frequently a portion of this major-subject-work was taken in groups of six or even less. But the bulk of his program, even in his major-subject, was taken in classes, and some of these classes contained a hundred or more students. Often the class roll showed registrants from each of the four classes, as well as graduate students. In the social sciences the registration in large classes was unusually heavy and widely scattered. Departments in this group were at times unable to give satisfactory individual attention to their majors, due not only to the greater registration, but also to the fact that there were fewer students with a specialist's interest, which is such an aid in independent work.

Even under the more favorable conditions which maintained in departments with few major-students, it came to be realized that something more might be done for the "exceptional student," in the way of release from routine requirements, of plan for each individual case, of concentration upon development of mind, as well as training in technic and in acquisition of subject-matter. To break the "lock-step" would be desirable. In the larger departments, particularly in those in which recent advances in knowledge have been very rapid, it became increasingly evident that prescribed courses of study, even with elec-

tives, gave too little sense of adventure to the alert mind, that there were too few adequate tests of what the interested student "could do, if pushed." Outside the classroom there were many such tests. The written word brought the sense of them to him every day, and frequently the spoken word as well. But amid a maze of requirements and surrounded by students who gave him inadequate intellectual competition, he appeared to be more and more skeptical of the importance of the objectives as set before him and to turn his attention to "outside activities."

To provide a means of guiding the "exceptional student" in an independent line of study and to work out a plan which might become in time an integral part of the Stanford system was the task of a small group of the faculty interested in improving the intellectual standards of the undergraduates. After a considerable period of discussion and an investigation of methods in use at Stanford and elsewhere, in June of 1925 it was voted by the Academic Council to inaugurate an Independent Study Plan at Stanford. In the autumn quarter of that year a committee of the faculty undertook the administration of the plan. We have before us, then, the record of the work of the past three years.

It will be well to state at once the composition of the committee and to indicate limitations upon its powers, for the work thus far done has been determined in large measure by these facts. The committee of five is elected by the Executive Committee of the Academic Council, and its chairman is designated by the same authority. It stands in the same general relation to the undergraduate enrolled under the Independent Study Plan as does the committee on graduate study to candidates for advanced degrees, except that the Committee on Independent Study does not have the power to recommend for degrees. Inasmuch as this remains a function of the various schools and departments, the committee has been able to formulate plans, outline programs, and conduct examinations only as these have

been approved and supported by the departments and schools concerned. Moreover, it was provided that the use of the plan should be optional with schools and departments, and a number have not adopted it for the use of their majors. There is a considerable opposition to its development. Consequently the plan in its operation during the past three years has varied from department to department, even from student to student. It is difficult to summarize the Stanford experience without the danger of a considerable misunderstanding. As yet a university plan has not had a university trial.

The essential features of the plan have been summarized as follows:

> Any student whose university record is of a "B" average or above, or who is deemed by his school or department as specially qualified may, with the consent of the school or department, enroll under the Independent Study Plan at the beginning of the junior year, or at the beginning of any quarter thereafter. The plan of study shall be arranged with the intention of providing a program of work both more comprehensive and more intensive than that of the average student, calling for greater initiative, more self-direction, a higher type of thinking, and leading to a comprehensive final examination or examinations. Some faculty member of the school or department shall be special adviser of the student. The student shall be checked up in his work through reports, theses, discussions and conferences with the adviser, or, and to the extent that may be determined, through meeting the regular tests in particular courses. The degree credit for the period of study under the Independent Study Plan shall be determined and awarded on the basis of the final examination or examinations.

In the past three years twenty students have been admitted to study under this plan, and, of these, seven have taken their degrees, three with great distinction. They were majors in the departments of English, Political

Science, Classical Literature, Philosophy and Psychology. As yet no student has studied the full two-year period possible under the plan, and each has had a considerable portion of his work in regular courses. Of the ten seniors now enrolled under this plan, three are in English, three in history, and one each in economics, philosophy, classical literature and biology. For each a special program for three quarters has been formulated. Each has an adviser, in some cases designated by the department, in others chosen by the student and approved by the committee.

The plan has varied greatly in operation. All programs have been given departmental approval, and each program has detailed the items of work, taken in course and otherwise. In general it may be said that advisers have met the students at regular intervals, from one to three hours each week. These individual conferences have been given over to reports, discussion, questions and criticism of paper work. Term papers have been required, in some cases a thesis covering the work of two or three quarters. In all cases there has been an oral examination at the close of the work; in some cases written examinations as well.

In the two oral examinations held at the close of the spring quarter of the present year, one in Classical Literature and one in English Literature, it was the opinion of the committee members, as well as of the examiners from the two departments, that the candidates had not only passed with distinction, but also that such examination and such performance could not be thought of as possible under the usual plan of study. Not only was there displayed a grasp of a great body of information, but there was an ability and willingness, not to say eagerness, to correlate materials, to draw conclusions, and most of all to raise questions of interest and interpretation. One of these students was examined on Chaucer, Shakespeare, Milton, and English history; the other on Homer, Thucydides, Horace and Virgil. In each case the work covered the period of a year of study and reading. In no sense were these examinations

exhaustive, nor were they intended to be. Bibliography and criticism, so characteristic of examinations for graduate degrees, were barely mentioned.

It is to be hoped that by the close of the present year opportunity will be had to test the work of students who have covered a full two-year program. Departments have been loath to recommend men who are beginning their junior year, and who have as yet made no record in a department. Whatever may have been the brilliance of their performance in the lower division, the departments have not known them as majors. It is felt by the members of the committee that the time may come when it may seem desirable to reach down into the lower division and to release exceptional students from requirements that must be fulfilled in courses. These might be met in other ways which would more effectively test the abilities of these students. An indication of what may be possible is seen in a trial made this past spring quarter in the course in problems of citizenship which all students take throughout their freshman year at Stanford. Thirty-three students who had done excellent work, and who were recommended by their instructors, were in early May released from attendance upon classes in this course. They were given special assignments and at the close of the quarter each passed with distinction an oral examination upon the assignments and upon the reading provided in the syllabus.

Three aspects of the Stanford experience have caused a continuance of faculty discussion. Individual programs for independent study require a great amount of time and thought on the part of the adviser. Thus far there has been no group study, and no competition, even in examination, for each student has had individual attention from beginning to end. It is felt that there are advantages in the group programs and competition is one of them. Moreover it is very evident that as the number of students working under the plan increases, either such group treatment must be substituted for individual teaching, or a large sub-

sidy must be secured to enable a reduction in the normal teaching program of those who are giving time to this work. Again it is felt by some that an adherence to individual program making tends to reduce the opportunities for crossing department and subject lines. Group program making, and before this an outline of possible fields of study by the committee, is thought desirable. Finally, it is generally agreed that only as the final examinations are conducted by the Independent Study Committee, representing the faculty of the University, will there be the unity and regularity essential to the vitality of such a plan of educational procedure.

It must be said, then, that at the present stage in the development of this method of teaching at Stanford, the emphasis is upon the release of the student in order that he may do a specific course of reading or undertake a preliminary task in research. It is not, as yet, upon the opportunity to spend a year or more in a field of study where, with expert guidance and stimulating competition, he may be expected in an independent manner to test exceptional abilities and to secure the grasp and information of an educated man. Yet a beginning on a university plan has been made at Stanford. And it has had the effect of causing less comprehensive plans of independent study to appear in various departments and schools. Emphasis has been given to the importance of the "exceptional student," and impetus to the movement to improve the intellectual standards of the undergraduate. In time an improved teaching technique will appear.

THE CONTRIBUTION OF THE LIBRARY TO COLLEGE TEACHING

LIBRARIAN WILLIAM WARNER BISHOP, General Library, University of Michigan

Modern college teaching is based upon the laboratory method. Instruction merely through recitations, lectures and single text-books is generally obsolete, particularly in those branches which are of more modern growth, save for very elementary and introductory courses. No college president would hark back to the cheap and simple days of "*fourteen weeks in chemistry.*" Instead he points with deserved pride to an elaborate and well equipped series of laboratories for biology, chemistry, physics and astronomy. The laboratory method has captured teaching of collegiate grade.

The social sciences and the humanities find their laboratories in the library. It provides the means for experimentation, testing, comparison and abstracting as truly as do the work bench, the anatomist's table, the microscope and museum specimens. This fact is too little understood. "Books" have too often meant "text-books" to the unreflecting. Books as the vehicles of training in method—the chief goal of college teaching—have been but imperfectly apprehended by administrators, trustees and the elder statesmen of many faculties. But the fact remains—only in books organized and administered in libraries can the students and teachers of such subjects as philosophy, history, literature, economics and political science find the true and vital means of study. History for instance—what modern professor will try to teach, say the history of the American Revolution, on the basis of a text alone, or even by the lecture method without texts or collateral reading? One has but to pose the question to answer it. It isn't done. Just as no teacher of chemistry expects his students to have

at home their private and individual laboratory collections of apparatus, reagents, gas, water, and electricity, so but few, if any, professors of French literature can hope to have students who own in their private libraries full sets of encyclopaedias, literary and critical journals, dictionaries, the great standard texts of French authors, and the lesser lights of modern days. He is lucky if they own a single French-English dictionary and the texts they are studying in class. He and they must perforce depend on the college library not alone for that perspective which will give a course or an author proper setting, but even for the means of daily study and recitation, to say nothing of the preparation of papers and reports.

The use of the library for what may well be called—for want of a more fitting term—the laboratory method in teaching the humanities and the social sciences has certain necessary implications which demand attention—and money.

First, the supply of books must be adequate and modern. There must be books which are sources and other books which are more special treatises on topics taught. There must be at least a fair number of files of technical journals, and the more general reviews. The collection of works not necessarily the concern of any one department of instruction must be not only large but interesting as well.

This is easy enough to say—but costly of both money and time. The tendency has been of late years to buy rather full numbers of copies of a few books definitely required to be read in connection with certain courses, instead of a greater number of books on the larger field. That is, "required reading" has been very much more a requirement that certain chapters in certain books be read and reported on than an obligation to familiarize oneself with the literature of a topic under study in a course. There are happily signs of a change in this attitude. But that change—if it becomes at all general—is going to require

far larger collections of books for required and general reading.

What is an adequate supply of books for a good undergraduate college? This is one of the riddles which are continually set for librarians—but no one knows the answer. There might well be some definite ratio between books and students, were it not for several factors which interfere with establishing such a fixed rule. The fact that in many lines—philosophy, for instance, few books (other than classroom texts) become obsolete with the years is one consideration. Another difficulty in establishing a ratio is shown by the fact that no college faculty has yet protested that the college library is too large for effective teaching. The necessity for duplication on a fairly large scale to supply enough copies of important books is another disturbing element. Ten copies of each of one hundred titles make a thousand volumes, but for the purposes of a ratio they are but one hundred. Certain minimum standards can doubtless be set, depending on the number of departments of instruction, the presence or absence of other libraries, the number of students, and the nature of the subjects taught. Pure mathematics, for example, may be well cared for with a thousand volumes in some colleges, with but little duplication and less cost of replacement, while English literature in the same college should have at least six thousand volumes—not including duplicates for class use. A well-selected library of fifty thousand volumes will perhaps suffice for the needs of sound teaching in a college of not over five hundred students. This number does not include duplicates, which are of course comparable with consumable supplies in a laboratory. But emphasis must be placed on selection, on the character of the collection, and on provision both for duplicates and for replacement. Fifty thousand volumes alone do not make any standard, as any librarian knows.

In considering the suitable minimum we should not lose sight of the fact that the natural and physical sciences as

well as the technological branches need libraries just as much as they need laboratories. They can not do without either.

But an adequate provision of books calls also, as a necessary corollary, for a serviceable and well-planned building. Such a building must be laid out with a view to intensive use as a laboratory by large and growing numbers of students. That means adequate study halls and reading rooms, a sufficient number of seats even at crowded hours, perhaps even an individual desk for each college student in the library itself. It means also direct access to the library's shelves on the part of all students—of course with a proper provision for caring for rare and valuable books. There is no question whatever that direct access to reference books is not enough. No college library—as distinct from huge university libraries—need place any bar between the student and all the ordinary books in that library. No other single factor is likely to be more important in forming and molding the student. To deny it to him is to shut him off from direct contact with the best the college can offer him.

The laboratory view of the college library demands an adequate, professionally trained staff of librarians with full academic standing for its various grades of service. Librarianship has made remarkable strides in America in the past fifty years. Colleges and universities have been far slower than cities and governments to recognize this fact, to reward proven ability and talent, and to admit the non-teaching staff generally to full academic fellowship. The result has been rather painfully apparent in the character of much of the library service in our colleges. Modern methods of classification and cataloging and the full use of bibliographic tools now provided in such large measure insure in the hands of a competent staff a definite and detailed service to readers, making quickly available the contents of large masses of books formerly too often mere ornaments on the shelves. Books and a building alone

will not and do not make an effective library. Without trained and enthusiastic librarians the college library will never make its full contribution to college work.

Valuable as the college library may be as an aid to teaching, it has an even higher educational function. The college library is one of the surest means to acquiring culture. Hours spent in it on an independent or directed search for knowledge have results far beyond the measure of grades or efficiency tests. Who does not recall the discovery for oneself of books which have marked stages in one's intellectual—and even moral—life? I would rather turn a boy loose in a good library of the literature of our English tongue than have him recite or write papers on the English drama, the modern novel, or the poetry of the Anglo-Saxons. If he fails to come from college with the reading habit ingrained in him, he has missed about the best thing that college can give him. And how shall he form the habit of discriminating and judicial choice of books, if he be not exposed to books in large numbers?

And lastly, one of the soundest contributions of the college library to teaching is its aid to maintaining the vitality of the teaching done by the faculty. To this end the college library needs to be far better and far larger than very many of them have been in the past. No real teacher is likely to do his best work when continually deprived of the means of prosecuting his own researches, of following his own studies. If he must journey far and frequently for this end, his routine work of teaching can not but show his lack of progress. If he have at hand daily and hourly at least a large part of the books he needs, his mental attitude toward his work is likely to be healthier, sounder and happier. The college library can not only contribute to teaching undergraduates—it can feed and nourish the teacher himself.

MEASUREMENT AND EXPERIMENTATION IN EDUCATIONAL METHODS*

PROFESSOR V. A. C. HENMON, Department of Educational Psychology, University of Wisconsin

For three years I have been associated with the Modern Foreign Language Study, interested particularly in the production of prognostic and achievement tests as instruments of analysis and in the setting up of controlled experiments on objectives, curriculum-content, organization and method in the teaching of the modern languages. This work covering as it did necessarily a wide range of problems has occasioned many hours of reflection on the possibilities and also on the difficulties of measurement and experimentation in education. The outstanding characteristic of our generation in education is the application of quantitative and experimental methods. We have taken seriously the ideal of the exact sciences "to measure that which is measurable and to render measurable that which is not." The challenging axiom of one of our leaders, "Everything that exists at all exists in some quantity and can be measured," we have accepted, and the application of quantitative methods goes on apace. We teach our students to be scornful of tradition and of mere observation and insist that all things must be subjected to the test of controlled experimentation.

IMPERFECTIONS AND AMBIGUITIES OF MEASUREMENTS

This is undoubtedly a healthy attitude to take if education is to become a science, but the constant reader of present-day educational literature can not in his critical moments help but be troubled by the imperfections and

* Reprinted from the Proceedings of the Eighth Annual Ohio State Educational Conference.

ambiguities of our measurements and the inconclusiveness of our sporadic experiments. When, for example, on such an important problem for educational theory and practice as the effect of equal practice on individual differences, whether equal practice increases or decreases them, we find out of twenty-four experimental studies twelve of them leading at least tentatively to the conclusion that differences are increased and twelve to the conclusion that differences are decreased, we can not help wondering about our experiments and about the conclusions derived from them. Experimentalists in education perhaps need to be reminded of Aristotle's observation, "Those who take in but a few considerations easily decide." The temptation to play up apparently justified conclusions, especially when they run counter to generally accepted notions, is too strong to be resisted and is the bane of education in America. Bacon's criticism of experiment in his day applies aptly to much educational experiment in our day, "Even when men build any science and theory upon experiment, yet they almost always turn with premature and hasty zeal to practice, not merely on account of the advantage and benefit to be derived from it, but in order to seize upon some security in a new undertaking of their own not employing the remainder of their labor unprofitably, and by making themselves conspicuous, to acquire a greater name for their pursuit. Hence like Atalanta, they leave the course to pick up the golden apple, interrupting their speed, and giving up the victory." A more recent critic, not unsympathetic with measurement and experimentation, writes, "We live nowadays in American education amid a perfect orgy of statistical methodology, much of which can make but little or no contribution to constructive pedagogy. For those who expect something *Alleinseligmachend* from these proceedings one might paraphrase from Mephistopheles:

Der Statistiker der tritt herein,
Und beweist euch, es musst so sein:
. . . . . .
Das preisen die Schüler aller Orten
Sind aber keine Weber geworden.

Intelligence Tests and Achievement Tests

For a dozen years or more we have sharply distinguished between intelligence tests as measures of capacity to do the things that lie ahead and achievement tests as measures of what lies behind and now Kelley in his recent book on the *Interpretation of Educational Measurements,* has shown that this is very largely if not entirely a spurious distinction and that the accomplishment quotient or ratio, of which so much was predicted, is an unsound measure. One can not help but think of the lines from Browning's "Cleon" that Cattell is so fond of quoting:

> And I have written three books on the soul
> Proving absurd all written hitherto,
> And putting us to ignorance again.

It may be pointed out in passing that the present almost chaotic condition in our conceptions of what psychology is about make this quotation now peculiarly appropriate. Those who believe that psychology, if it is anything at all, is the science of the inner life are dubbed the medicine men of a prescientific age and beyond the pale by those to whom psychology is a science of behavior. Those who believe that "psychology long ago lost its soul, is now losing its mind, but can never quite lose consciousness," more politely dub the extreme behaviorist as a biologist or as a physiologist. While the psychologist is likely to be scornful of education as a pseudo-science, he too has troubles of his own and finds his footing among biologists and physiologists pretty insecure.

Relationships Between Mental Traits

Twenty-five or more years ago, when we began to apply systematically the method of correlation to the study of the

relationships between mental traits, the early results showed a surprisingly low correlation. One of two interpretations was possible: either our measurements of the traits in question were imperfect or else there is a high degree of independence in mental functions. The latter interpretation was accepted and has for a quarter of a century influenced very materially our theory of curriculum-making and methods, and our notions on transference of training. The reader of the accumulating literature on this important problem for educational and vocational guidance and for educational theory and practice can, however, not escape the conclusion that with the improvement in statistical methods, notably by the corrections for attenuation proposed by Spearman and methods of partial correlation, with the improvement in the reliability and validity of measurements, with the increase in the number of cases, control of or allowance for the variability of groups, and the equalization so far as possible of effects of practice, the correlations reported have steadily increased. Whatever may be the causes, whether due to a common central factor or to group factors, the relationships between traits are not only positive but high. Imperfections in our measurements, not low relationship between mental traits, appears from the accumulating evidence to have been the sounder interpretation. Our educational theorizing and practice have, however, been shot through and through by notions of the extreme specialization of mental functions and the non-transferability of training and still are. In a reaction against discipline we have made knowledges and skills sacrosanct. Karl Pearson maintained years ago that "the true aim of the teacher must be to impart an appreciation of method and not a knowledge of facts. This is far more readily achieved by concentrating the student's attention on a small range of phenomena than by leading him in rapid and superficial survey over wide fields of knowledge." I believe in the soundness of both propositions but they run

quite counter to the educational philosophy which has underlain much of our thinking on curriculum and methods for two decades. The philosophy itself grew out of imperfect measurements and inconclusive experiments.

Transfer of Training

Since James made his experiments on the transfer of training, we have had upwards of forty experimental studies on the different aspects of this central problem of education. We are about as far from a solution as we were when we began. When the Committee on the Reorganization of Secondary Mathematics attempted to formulate some inferences which might reflect the present status of disciplinary values in education in the light of experiment, there resulted seven rather vague statements, one of which was to the effect that "the true amount of transfer from one field to another has not been found by experiment, on account of one or more of the following handicaps:

(a) the maturity or previous training of the subjects tested;
(b) the absence from the training of the factors most favorable to transfer;
(c) the inadequacy of the tests to measure the traits sought."

We have a single important generalization out of the welter of experimentation and discussion, that there is transfer in so far as there are common or identical elements, and even this Judd characterizes as vague, ambiguous and useless. Judd has proposed a theory of generalization and in the literature we have two supposedly contrasting theories presented, the theory of identical elements and the theory of generalization, as if generalization could mean anything else than finding identities between experiences. It is easily conceivable that of two pupils seated side by side under the same teacher, one because of fertility of ideas, capacity to see similars in experiences, sagacity, men-

tal alertness, or whatever we may call it, will secure wide transfer values, the other not. It is also conceivable that of two teachers, both good so far as any standards of technique of instruction we now possess are concerned, one will make instruction widely transferable, the other not. Transfer then becomes a matter of individual differences in the learner and individual differences in teachers and teaching. Even if we grant that there is transfer only in so far as there are common or identical elements, who knows whether the elements common to two activities or two school subjects are many or few. One may claim that the common elements are many or important, the other that they are few or unimportant, without fear of successful contradiction. We have not settled the quarrels about disciplinary values or transfer, nor is there any prospect of our doing so. As a matter of fact Thorndike's important study of mental discipline in high school subjects which goes to show that while the general improvement due to studies in the capacity to think is small, the differences between studies in respect to it are likewise small, can very well be interpreted to mean great community of elements in school subjects.

Principles and Practice

For some months I have been cooperating with Professor Freeman, of Chicago, in a canvass of the literature of educational psychology now offered to teachers in an effort to determine what facts, laws or principles educational psychology has to offer as specific guides to practice. It is rather a disconcertingly difficult task. An example or two will suffice. Educational psychology might be expected to offer specific suggestions on the effect of different modes of presentation in memorizing such things as lists of words, whether they should be presented to the eye or to the ear, or to both senses simultaneously, and whether the words should be articulated at the time of presentation. This is a very specific and definite problem. Here is what a very competent text in psychology has to offer:

Much experimental work has been performed to determine the relative value of these various modes of presentation. No consistent results have been obtained. Some experimenters have found that articulation is an aid with the majority of subjects, while the opposite result has been obtained in other experiments. Some have found that visual presentation is better than auditory for most subjects, while auditory presentation is the more efficient in other experiments. Sometimes the material may be memorized more readily when it is presented to the eye and ear simultaneously, and sometimes better results are obtained when one sense organ is employed. Evidently the relative values of the several modes of presentation vary with the individual, and probably with other conditions as well.

The individual factor is probably due in large part to differences in training and habits of study. A person who is accustomed to articulate words while memorizing them will naturally be at a disadvantage when requested to inhibit this tendency, while a person who does not articulate will be distracted by the attempt to do so. A college student who organizes and memorizes the materials of a lecture while listening to it will naturally be able to memorize better with auditory than with visual presentation, while those students who are accustomed to the text-book method of instruction will do better with vision. It is thus obvious that any statement concerning the relative values of any two modes of presentation is worthless unless the subjects employed in the experiment are equally practiced in memorizing material in these two ways.

If this is an accurate summary of the statements that can fairly be made, and it is, after upwards of forty experimental studies, how can rules of practice or any helpful suggestions for method be extracted from them? Similar difficulties in securing clear-cut statements for the guidance of practice are encountered on such matters as the distribution and length of practice periods, on learning by wholes and by parts, on rate of reading in learning, on retroactive inhibition, and on fatigue, to mention only some notable examples. These illustrations, and they could be greatly extended, may suffice to point the moral, that our measurements are too imperfect to base a true science of education or methodology upon them, that our experiments are too inadequately controlled, and that educational processes are so complex that our relatively simple experiments

are incapable of revealing them. When we bear in mind that these experiments, cited for illustrative purposes, are for the most part laboratory experiments and not carried out in schools and under school conditions, the inconclusiveness of them is the more apparent and the difficulties of interpretation and application become all the greater.

Methods of instruction, we should all agree, must conform to the laws and principles under which the organism works most economically and effectively in acquiring its experiences. But it is just these facts, laws, and principles of human behavior that it is so difficult to formulate and which if they could be formulated would be the real foundations of method. The highly integrated forms of response even of the six-year-old child are so complex as almost defy analysis. Every educational process or product that has been studied quantitatively and experimentally turns out to be much more complex and intricate than we had supposed it to be. Witness the situation in the two subjects—reading and arithmetic—most assiduously cultivated by experimental education. Both bristle with unsolved problems. We are not clear as to what reading ability is nor can any one trace out at all accurately the way in which our reading habits are built up. Darwin long ago observed that we do not know a thing until we know how it came to be and what it is. Now that psychology is giving so much critical study to the simplest reflexes and the methods of conditioning them in infants and the higher animals, perhaps we can hope for greater clearness as to the way in which higher orders of habits are integrated.

Absence of Controlled Experiment

It is easy to be critical of our achievements and to set forth our deficiencies but it is better that we who are interested in making education a science and founding an art upon it should be clearly conscious of our limitations than that others should point them out for us. The sage observation of Socrates that he who knows nothing knows much

in knowing that he knows nothing has much of comfort in it. Courtis has recently rather pessimistically declared, "We have no science worthy of the name, and no prospect of developing one so long as we refuse to face the inadequacy of our present results and the non-scientific character of our many rationalizations. . . . We have deceived ourselves into considering our progress to be on a higher level than it really is. The challenge of the opportunity before us is as vast as it is unperceived by the rank and file of those in education whose interest is to be scientific." If this is the situation, and I think it is, what can be done about it? We have no lack of faith in measurement and experiment. We need much better measurements and more carefully controlled experiments and should take steps to secure them. We have forty or more experimental or laboratory schools and at least one experimental college but Rugg and Counts pointed out two years ago that in not a single one of the laboratory schools was a controlled experiment being conducted. Our so-called experiments are rarely experiments in the scientific sense and seldom if ever yield results that are convincing to an unprejudiced observer. He at once sets about picking holes in the experiment and has no difficulty in doing so.

Is Scientific Experiment Possible in Education?

It may be urged and has been again and again since John Stuart Mill wrote on the logic of the moral and social sciences that experiment in the scientific sense is impossible in education. Thus Shorey maintains, "In the physical sciences the experimental method isolates and discovers the true cause by elimination. The plurality of causes and the intermixture of effects preclude this procedure in the infinitely complex social sciences of theology and education." To which we may reply with John Ray, "Much may be done though we but endeavor, and nothing is insuperable to pains and patience." The crude experimentation to which we now resort must, however, be replaced if we are

to justify the experimental attitude and the experimental ideal in education.

Genetics an Exact Science

The outstanding achievement in science during the last twenty-five years has been the development of genetics as an exact science. East, in his recent remarkable book, *Heredity and Human Affairs,* points out that, "Genetics was born and christened because of Gregor Mendel, not because he was such an intellectual giant he could analyse and codify the complex results which had baffled his predecessors in hybridisation work, but because he had the really brilliant idea of simplifying his experiments to the point where he was dealing with only one or two variables at a time. When heretofore botanists had crossed plants differing by hundreds of characters and had been bewildered at the apparent chaos of their data, Mendel used varieties which differed by a single striking character. This lone character he followed through generation after generation with the carefulness of a master workman, obtaining results so simple that he was able to give them their correct interpretation."

The Control of Variables

We need to learn this great lesson of controlling our variables better in educational experiment, and it cannot be too often emphasized, if we are to make real progress. We need to set about deliberately and consciously to create the means for this enterprise to control one by one the variables of importance. Problems of objectives to be realized and the conditions of their realizability, pupil capacities, curriculum content, methods of instruction, and standards of accomplishment are so complex and reveal so many uncontrollable factors, or factors that can be controlled only with the greatest difficulty, that only long-time, large-scale investigations will yield final and conclusive evidence. The difficulties of the case have been brought home to me very clearly in attempting to attack

fruitfully two fundamental practical problems in the teaching of the modern languages—the age at which the study of a foreign language can most profitably be begun and how long the study must be continued to secure genuinely worthwhile results. These are problems on which there is such wide difference of opinion even among language teachers and such strong prejudices that only indubitable evidence has any chance at all of carrying conviction. The problems are just now of practical importance in connection with the developing junior high school and the place of the modern languages in its curriculum. The answer to the question of the age of beginning is so complicated by the purpose or aim of the student, his intellectual level, the length of time the study may be continued, the methods used and the social value of the modern language in relation to the subjects they replace or by which they are replaced that convincing experiments are difficult to devise. At any rate only a carefully planned study, extending over a ten-year period or longer could possibly tell the story, for we are interested not only in immediate results but in the permanent outcomes after a lapse of time. Comparative studies of achievements of pupils beginning in the seventh, ninth, and eleventh grades and in the first year in college which show generally a higher achievement in such language capacities as can be measured as we ascend the age scale, are a contribution to the problem but not a solution. Even if a language is learned with greater difficulty at the earlier levels, it may be a more permanent and usable acquisition when so learned.

Objectives, Content and Organization Versus Method

The problem of method in the teaching of the languages has as every one knows been the subject of much controversy and acrimony since the days of Vietor. Discussion has centered about the relative merits of the grammar-translation method and the direct method. To discuss methods on this level seems to me to lead nowhere. If a pupil expects

to pursue the language for four years or more, one method may be the most economical and effective. If he studies the language for two years or less, as 84 per cent of the pupils now do, another method may be most effective. The age of beginning, previous language training, objectives or purposes to be realized, the length of the course, and many other considerations determine method. Method will be among the last of the problems of education to be scientifically established. Until we are clearer about our objectives, content, and organization, we shall continue to flit from supervised study to socialized recitations, to problem-projects, to contract plans, and what-not.

Research Institutes

The only solution that I can see lies in the creation of research institutes in each of the school subjects for the direction of experiment and the dissemination of information in usable form. My fondest hope will be realized if out of the Modern Foreign Language Study there may grow a Modern Foreign Language Research Institute to carry on the needed investigations on which only a beginning has been made. We have reached the stage where we realize that we can not solve our problems by theorizing or taking thought about them. We have also reached the stage when we find we can't solve anything by appointing committees and by taking votes. We have also, I hope, reached the stage when we can not rely for progress on sporadic experiments here and there by interested teachers or on research by graduate students in our colleges and universities. Our great endowments could expend their resources to better advantage in supporting such institutes than in the support of short time committee investigations. If each of the schools of education in which research is being carried on would concentrate its special efforts on some one school subject and become the center of activity in this field in close cooperation with the schools of its state or region, we might control the numerous variables and we

could expect results which we can not under present conditions hope to attain. As matters stand now the enormous increases in secondary school and college enrolments have brought it to pass that those who are most capable of making fruitful investigations are swamped by teaching and administration, and constructive research languishes.

I have said little about method in teaching and should perhaps apologize for the omission. The real foundation of method has still to be built. Method apart from objectives, content, and organization is an abstraction without much meaning. All we can do is to dream of the day when principles of method that will stand the test can be formulated and in the meantime live as well as we can in our dreams. We are afflicted now with inadequate measurements, inconclusive experiments, and a realization of the complexity of our problems. We may take comfort that "our light afflictions which are but for a moment work out for us a far more exceeding and eternal weight of glory."

CHATTANOOGA PREPARES TO WELCOME THE ASSOCIATION

PRESIDENT ARLO A. BROWN, University of Chattanooga

Chattanooga is preparing to give a royal welcome to the members of the Association of American Colleges when they come to our city for their next annual meeting, January 10, 11, 12, 1929. Few if any cities in the country offer such a combination of scenic beauty and historic interest as that which is found in the vicinity of Moccasin Bend in the Tennessee River. The places of greatest historic interest are Chickamauga Park,—now a Government owned reservation of 5,500 acres,—Missionary Ridge and Lookout Mountain. These are three of the most famous battlefields of the Civil War. For scenic beauty the panoramas from Lookout Mountain and Signal Mountain are unsurpassed. Fortunately any one of these vantage points can be reached in less than thirty minutes by automobile from the headquarters of the Convention. A ride embracing as many as possible of these points of interest will be given as a compliment to the delegates and their friends.

Chattanooga is especially fortunate in hotel accommodations. The Read House, which has been selected as convention headquarters, was opened in July, 1926, and will provide amply for the general meetings as well as for the numerous sectional and committee meetings held during the week. Single rooms with bath may be secured at rates from $2.50 to $4.00. The Hotel Patten, another modern first class hostelry, is just two blocks from the Read House and will doubtless be the headquarters for some of the affiliated organizations which will meet in Chattanooga during "Education Week." Single rooms with bath may be secured at the Patten at the same rates, $2.50 to $4.00. While the number of rooms at the minimum rate is limited, no one who makes early reservation, will have any difficulty in securing a room for $3.00 to $3.50.

If one wishes to stay on a mountain he may go either to the new Lookout Mountain Hotel or to the Signal Mountain Hotel. If he wishes to lodge near the seat of the convention he will probably select either the Read House, or the Hotel Patten. All four of these hotels are first class. Smaller hotels of good quality are also available.

The City Commission, the hotel managers, the Convention Bureau, the Chamber of Commerce and the University of Chattanooga, aided by a host of warm hearted citizens, are eager to help the Association of American Colleges make its next meeting the most profitable and delightful one that has ever been held.

THE EFFECTIVE COLLEGE

The Effective College has met with a most favorable reception from members of the Association and the general public. The book is sold at $2.00 per copy; library discount, ten per cent. For table of contents, see March BULLETIN, pp. 155–156.

Dr. John H. Finley, Editor of the NEW YORK TIMES:
I wish I could have had such a book when I was beginning my work as a college president.

Two leaders alert to literature on college problems:

I was wakeful the other night when I should have been asleep and thought to induce slumber by reading THE EFFECTIVE COLLEGE. It did not work that way. It waked me up to my depths. I consider it a most valuable collection of educational wisdom, and hope its circulation may include all college executives especially.

THE EFFECTIVE COLLEGE I read this summer with increasing interest and much appreciation. You and your fellow writers have presented the problems and opportunities of our colleges in striking fashion. It is a book that men in college work must needs read.

Orders should be sent to the *Association of American Colleges, 111 Fifth Avenue, New York City.*